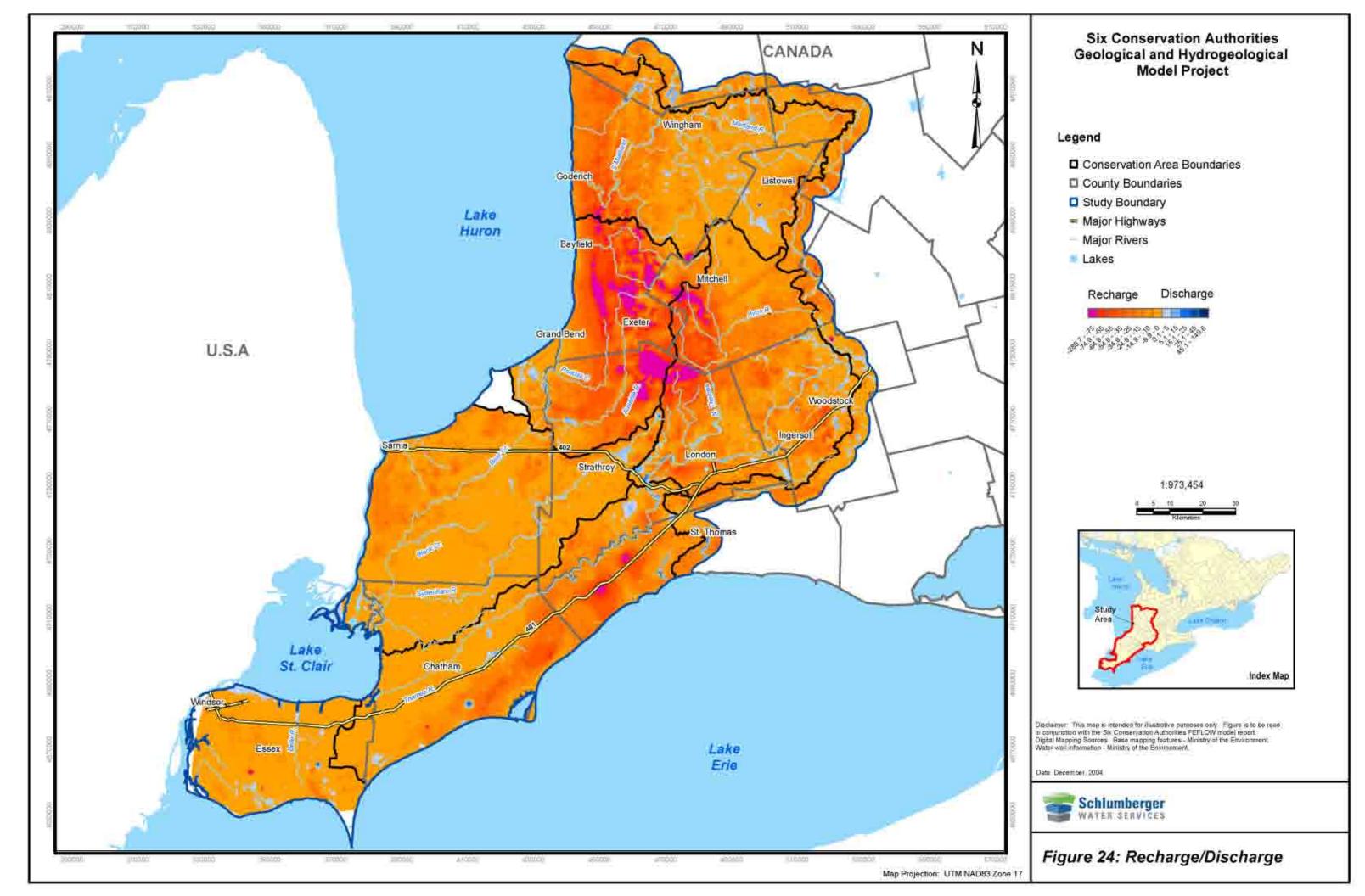


Appendix A

Estimated Zones of Potential Recharge and Discharge Areas





Appendix B

Assessment of Water Bodies and Distance to Project Components

| Feature ID | Project Component (associated infrastructure) | Distance to Disturbance (m) | Meets O.Reg. 359/09 Definition of a Water Body | Reason if Not a Water Body |
|------------|---|-----------------------------|--|--|
| C10-A | Collection Line Buffer, Road Buffer | 72.4 | Yes | |
| С10-В | Collection Line Buffer | 33 | No | Grassed waterway, tile drained, no surface feature |
| C11 | Collection Line Buffer | 60.9 | No | Grassed waterway, tile drained, no surface feature |
| C13 | Road Crossing; Collection Line Crossing | 0 | Yes | |
| C18 | Turbine 10, Road Buffer | 42.6 | Yes | |
| C19 | Collection Line Crossing, Road Buffer | 0 | Yes | |
| C20 | Collection Line Crossing | 0 | Yes | |
| C21 | Collection Line Crossing | 0 | Yes | |
| C22 | Turbine 33; Road Crossing | 0 | Yes | |
| C25 | Collection Line Buffer; Substation and Laydown Area Buffer | 20 | Yes | |
| C26 | Collection Line Crossing; Road Crossing; Turbines 25, 26, and 39 | 83 | Yes | |
| C27 | Collection Line Crossing | 0 | Yes | |
| C28 | Collection Line Crossing; Road Crossing; Turbines 25, 26, and 39 | 65.3 | Yes | |
| C3 | Turbine 5, Road Buffer | 60 | Yes | |
| C30 | Turbine 30; Road Crossing; Collection Line Crossing | 43 | Yes | |
| C32 | Turbine 40; Road Crossing; Collection Line Crossing | 0 | Yes | |
| C33 | Turbine 11; Collection Line Crossing, Road Buffer | 33 | Yes | |
| C34 | Collection Line Crossing | 0 | Yes | |
| C35 | Turbine 11, Road Buffer | 78 | Yes | |
| C36 | Turbine 7; Collection Line Buffer, Road Buffer | 70.9 | Yes | |
| C40-A | Turbine 3, Road Buffer | 33.8 | Yes | |
| С40-В | Turbine 3, Road Buffer | N/A | No | Tile drained, no surface water |
| C41 | Turbine 1; Road Buffer; Collection Line Buffer | 111 | Yes | |
| C42 | Collection Line Crossing | 0 | Yes | |
| C44 | Turbine 16 Buffer | 56 | Unknown | |
| C46 | Road Crossing; Collection Line Crossing | 0 | Yes | |
| C48 | Road Buffer | 59.4 | Yes | |
| C50 | Road Buffer | 110.8 | Yes | |
| C51 | Turbine 35, Road Buffer | 117 | Yes | |

| Feature ID | Project Component (associated infrastructure) | Distance to Disturbance (m) | Meets O.Reg. 359/09 Definition of a Water Body | Reason if Not a Water Body |
|------------|--|--------------------------------|--|--|
| C52 | Collection Line Crossing | 0 | Yes | |
| C54 | Collection Line Crossing | 0 | Yes | |
| C55 | Collection Line Crossing | 0 | No | Tile drained, no channel |
| C56-A | Collection Line Crossing | 0 | Yes | |
| C56-B | Collection Line Crossing, Road Buffer | 0 | No | Tile drained, no channel |
| C66 | Collection Line Crossing | 0 | Yes | |
| C7-A | Collection Line Crossing | 43 | Yes | |
| С7-В | Collection Line Crossing | N/A | No | Tile drained, ploughed and driven through |
| C71 | Turbine 41; Road and Collection Line Buffer | 56 | Yes | - |
| C72 | Collection Line Crossing | 0 | Yes | |
| C83-A | Collection Line Crossing | 0 | Yes | |
| C83-B | Collection Line Crossing | 0 | No | Tile drained, no surface water, grassed waterway |
| C87 | Collection Line Crossing; Road Buffer | 0 | Yes | |
| C88 | Collection Line Buffer | 48.5 | Yes | |
| C99 | Turbine 41, Road Buffer | 100 | Yes | |
| P1 | Collection Line Buffer | N/A | Yes | **note:vernal pool |
| P2 | Collection Line Buffer | N/A | Yes | **note: vernal pool |
| P3 | Road Buffer | N/A | No | Man made dug out pond |
| P5 | Collection Line Buffer | N/A | Unknown | |
| P6 | Collection Line Buffer | N/A | No | Temporarily ponded area that is normally farmed |
| P7 | Collection Line Buffer, Road Buffer | N/A | No | Temporarily ponded area that is normally farmed |
| P8 | Road Buffer | N/A | No | Temporarily ponded area that is normally farmed |
| P10 | Transmission Line Buffer | 0 | No | Man-made pond |
| T1 | Transmission Line Crossing | 0 | Yes | |
| T2 | Transmission Line Crossing | 0 | Yes | |
| Т3 | Transmission Line Crossing | 0 | Yes | |
| T4 | Transmission Line Crossing | 0 | Yes | |
| T5 | Transmission Line Crossing | 0 | Yes | |
| Т6 | Transmission Line Crossing | 0 | Yes | |
| Т7 | Transmission Line Crossing | 0 | Yes | |
| Т8 | Transmission Line Crossing | 0 | Yes | |
| Т9 | Transmission Line Crossing | 0 | Yes | |
| T10 | Transmission Line Crossing | 0 | Yes | |
| T17 | Transmission Line Crossing | 0 | Yes | |
| C100 | Turbine 14 | N/A | No | Grassed waterway |
| C101 | Turbine 18 | N/A | No | Ploughed and driven |

| Feature ID | Project Component (associated | Distance to | Meets O.Reg. 359/09 | Reason if Not a Water |
|------------|---------------------------------|-----------------|-----------------------|-------------------------|
| | infrastructure) | Disturbance (m) | Definition of a Water | Body |
| | | | Body | |
| | | | | through |
| C102 | Road Buffer, Turbine 15 | N/A | No | Grassed waterway |
| C103 | Road Buffer | N/A | No | Ploughed and driven |
| | | | | through |
| C104 | Turbine 24 | N/A | No | Swale, grassed waterway |
| C105 | Turbine 38, Road and Collection | N/A | No | Swale, grassed waterway |
| | Line Crossing | | | |
| C106 | Turbine 16 | N/A | No | Swale, grassed waterway |
| C107 | Road Crossing, Collection Line | N/A | No | Swale, grassed waterway |
| | Crossing | | | |
| C108 | Collection Line Crossing | N/A | No | Swale, grassed waterway |
| C109 | Turbine 41 | N/A | No | |
| C110 | Turbine 4 | N/A | No | |
| C112 | Collection Line Buffer | 0 | Yes | |
| C113 | Collection Line Crossing, Road | 0 | Yes | |
| | Crossing | | | |
| C114 | Turbine 19 | 115 | Yes | |



Appendix C

Field Notes

| AECOM | | _ | | | | Page 1 of 3 | |
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| 100-80% | | 30-1% | <u> </u> | Trees | | Shurbs | Man-made |
| 90-80% | 1.1/ | 0% | | Grasses | 80 | Herbaceous | Other |
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July 5/11 **AECOM** Page 3 of 3 Watercourse Sketch Turbina# SYNVIO Bluewater Land Parcels 03 Jesicho Goshen Study Area: LEGEND 10d depth (cm) $N \rightarrow$ Bw wdh Rese -: Run/G*de ⇔ Poor **I** tstand/βer Substitute elssed Casole /Bould'er ogy: culture CT Calle≟ SV/FV Submarg/Float EV Emergent ₩ Waleicress Fo tion Staining IIIIII Erodod **B**ank жак **Піріз**р (Olhar Cab Instream Log/Tres ^^^ Dam/Wei/ 🔊 Ropanian Tréo |-> Seep/Spring Undercut Rant Service to Fish Movement -S: Seasonal x-⊪ Fence — Curved Horizontal View of Channel Steep banks
I rauley features flowing
In from agri fields

| THE SHAPE SHAP | | | | | | | | age 1 of 3 | |
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| AECOM | | | | | | Field Crew: | SA CE | 3 | |
| | | تر. | Ger | eral information | 1 | | | | |
| Study Areas | Jericho | Goshen (B | lluewater | and Parcel# | 20101 | | Turbine # W | WS OF | 6-5 |
| Study Area: | Cartifolds | - · · · · · · · · · · · · · · · · · · · | 200 | THE PARTY OF THE P | Northing: | T. D. Malaci (W) | < 2 | - BLLUE | 30 |
| UTM Co-o | | 77.00 | ***** | | (Controlling) | | A31- | | |
| ate: July 167 | | S | tart time: | 8130 | | | 10.4 |) | _ |
| Veather Conditions: | Sunny | W F | Sic | | eld Notes | <\\ | | | |
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| East ob | By time | er lan | œ. | Site Location | | | | | |
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| Surrounding | Landuse/Pol | lution Sources | 1 | | Ту | e of Watercou | rse | | |
| Residential | | Meadow | ত | Intermittent | | Channelized | | | |
| Agriculture | | Wetland | | Permanent Ephemeral | 124 | Natural Char | inel | | |
| Forest | IXI | | | Chilemeta | | | | | _ |
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| In | -Situ Water Q | uality | | | 120 | Ground Water | indicators | | |
| | ne | Carre | | Watercress | D (| Bubbling | | None | |
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| WAY SAVING | Clear | \Box P | sycm | | | | | | |
| Water Clarity: | Clear | 12 | | | | | | | |
| votes: 1075 a | Furbid | water | | eam Morpholog | | | | | |
| Site Length (m): | | | | Bank Stability: | | | | | |
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| Channel Dimenions | | | | | Stable | unstable | unstable | Unstable | |
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| Mean Wetted Width | 1/0.0 | Bankfull Width (m): | 11- | Left Bank | 77 | -=2 | | | |
| (m): | 15 | | 213 | | Name of Street | rich. | - | | |
| Mean Wetted Depth | 0.15 | Bankful | 0.30 | Right Bank | | M | | L. | |
| (m): | | Depth (m): | | | | 41 8 | | 7X *** | - |
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| banks, s | DATE OF STREET | Directo | 1,00 | -91 | - | | | | |
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| | | | Stream | Morphology (co | ntinued) | Manabalania | al Christian / | V.) | _ |
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| /Bo - Boulder /Co - Cobble | | SINCH | Carl | Crospn | 30 | 3.5 | 40 | | 0 |
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| Other | | | | | are | neandi | 1280 | 15 | |
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| | | | | | | | | | |

Page 2 of 3 AECOM Habitat Instream Cover [%] Undercut Woody Aquatic Boulders 1 Other: Cabble None Vegetation* **Bank** Debris (E. "Aquatic Vegelation Types Present (alges, submergent, emergent etc.) Types of Cover (% cover) Canopy Cover (% closed cover): Trees /OO | Shurbs |)
Grasses | Herbaceous | \(\cdot \) Man-made NT F 100-90% 30-1% structures [Z]/1 90-60% 0% Other 60-30% Notes: Obsructions to Fish Passage Drainage Features within Study Area No Obstructions Man-Made Observations of Land Topography: marine of the second Netural Description: Terrestrial features present: Yes Other Comments: Observed fish opposite to Cappain as Photolog Picture# Description Picture # JOBKINS CO 915 824 - 2005 10 Brogan. page Bound Underail book

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Regard Married Laborators

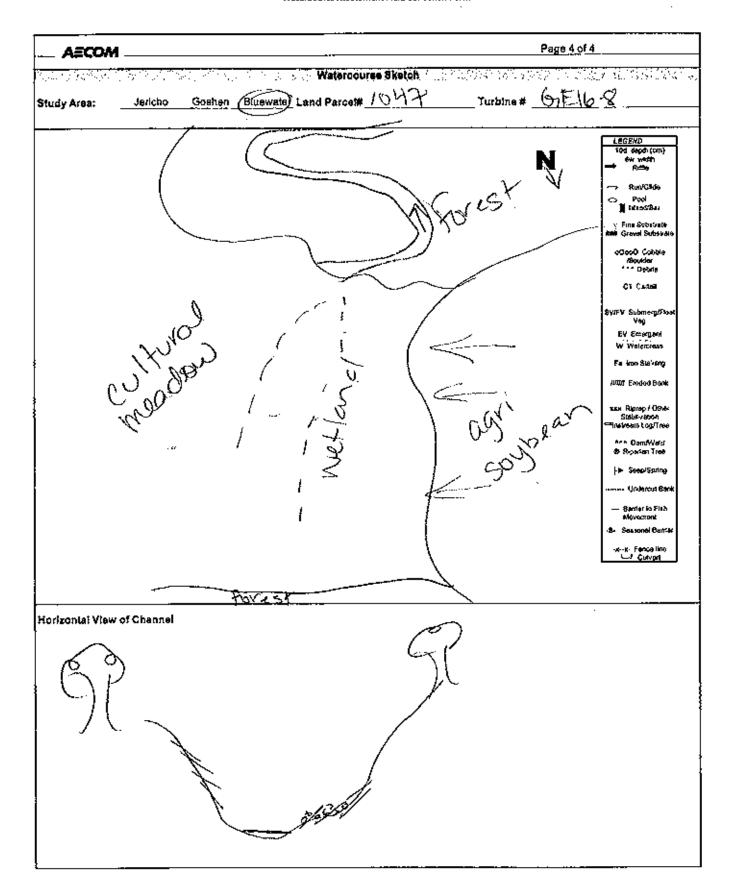
Waterbodies Assessment Field Collection Form

| A≘COM | | | | j why 6/11 | Page 3 of 3 |
|--------------------|--------------|-------------------|------------------|--|---|
| | | Waterco | ourse Sketch | | |
| Sludy Area: | Jericho Gosh | ien Bluewater Lan | d Parcell 10 (25 | Turbins#. | 20 <u>042 - 646</u> (6. 1) |
| Harizontal View of | Chennel | | | gadanus: | LEGENO 10d depth (cm) We width Ruffle RumGide Pool Island/Ger Fina Ref Gravel Substrate Obeo Cobble (Builder Debris CT Cattail SV/FV Submerg/Float EV Emergent W Watercress Fe Iron Staining INSI/F Erudel Bank ERR Repres Opher Instream Log/Ties And DanyWer/ Repanen Tiese Person Server Bank Remen to Fish Movement S- Seasonal Barnet Log-Tiese Culvert |
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| Study Area: | Jericho | | Bluewater | Land Parce# | | | | <u>GE 16-</u> | <u> </u> | |
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| Other: COSV | Crop | | | | | | | | | |
| Notes: (Include e | | | | rainage, seep | agea, overlan | d flow) | | | | |
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| WT (°C): 18, | <u>2</u> | AT(°C): | | | - | Vatercres | _ | Bank Seepage | Ω . □ | |
| pH: 5,-11 | <u>)- </u> | Cond (14s/ | <u>cm); O (</u> | <u>61</u> | | ron Staini Jubbling | | None Other | | |
| Water Clarity: | Clear | | Turbid | 54 | ` | | _ | | _ | Į |
| Notes: | | | | | <u>' </u> | | | | | |
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| Site Length (m): | | | | | Bank Stabilit | | | | | |
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| Instream Cover (| | | | ijared H a | bitet | 1. 1.1. | *:, | 31-74-5 | | | ` |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other | : | | |
| | D C | 5 | 30 | Ø | 5 | | | | | | |
| Canopy Cover (% 100-90% 90-80% 60-30% | ocospecolo de Coverno | (er): 30-1% 9% | | Types of Covi Trees Grasses | | Shurbs Herbaced | | | n-made ictures Olher | | |
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| | omments Regarding the Study Area: | | |
| trail | running through wet | ONES. | arright Channel |
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| AECOM | | | | | | | | Page 1 of 4 | |
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| | | | | | | Field Crew | : SA. | NŁ | |
| . | Jericho | Goshen | Riuewater | Land Parcel | Information | | | 1 | · n comi |
| Study Area: Date: | | | | | 00 | | Turbine # End Time | <u>* 12 - 27 </u> | <u>: 2-45mW</u> : |
| | | | Start time. | 11. (5 | Field Notes | | EIIG (IIII) | ير عنب | |
| Weather Conditi | آلار) :i ons : آلار | 11/1 | | | | " S4 | } | | |
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| Şısı | rounding La | nduse/Poliu | tion Source | * | | | Type of V | Vatercourse | |
| Residential Agriculture Forest | | Meadow Wetland Livestock | | | P | ermittent ermenent phemeral | | Channelized Natural Chann | h-1 |
| Other: Notes: (include: | | | | | | | | | |
| wr (°c);⊘\.\` | in-Sitt | Water Qua | iity | - |] , | Gi Watercress | _/· | ter Indicators Bank Seepa | je 🗀 |
| <u>pH: 13.38</u> | <u> </u> | Cond (Mst | <u>cm): () , (,</u> | e 7 | 1 | ron Stainir | • | None | |
| Water Clarity: | Clear | III | Turbid | | | Bubbling | ت | Other | |
| Notes: 1615 | 86 W | atera | (CO) | | | | | | |
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| Site Length (m): | | | | akmam i | Horphology Bank Stabili | ty: | | | |
| Channel Dimeni | one | | | | | Stable | Slightly unstable | Moderately unstable | Unstable |
| Mean Wetted Width (m): | 0.60 | Mean Bank (m): | full Width | 1.0 | Left Bank | M | Ц | | Ш |
| Mean Wetted Depth (m): | 0,12. | Mean Bank (m): | iful Depth | 0.32 | Right Bank | nz/ | | | |
| Flow Descriptio | n: | | | | | | | | |
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| operation, and the | The second second | The second second | 1 Y (4) 1 | Stream Morphs | logy (contin | Lied) | <u> </u> | | |
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| DT-Detritus Other | | | | | | | | | |
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| stream Cover | | · · · · · · · · · · · · · · · · · · · | | | | | | · · · | . , |
| None | Woody | Boulders | Cobble | Aquatic | Undercut | | | Other: | |
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| anopy Cover (| % closed co | ver): | , | Types of Cov | er (% cover) | | | | |
| 100-90% | | 30-1% | Ø | Trees | | Shurbs | 15 | Man-made structures | |
| 90-60% | | 0% | 口 | Grasses | 5 | Herbaceo | ve 5 | Other | |
| 60-30% | | | _ | | | | | | |
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| Other General Comments Regarding the Study Area: -agri Channel Funding Standard Sta | draway | in form features | |
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| MODEA | | | | | Page 4 of 4 | |
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| | <u> </u> | | | the state of the land | , | |
| Study Area: | Jericho | Goshan (Bluewater Lan | d Parcelli | Turbine # | (DE)6 | M1+2 |
| Horizontai View | | 50 / Soviest | Riparion 1629 | Beens | N | LEGEND Sid dogst (cm) Sign width Reside Routise Pool Interestal Interestal Fine Substrate Bounds Contail Bounds Contail Bounds Contail SVIFY Submarg/Flost Veg EV Emergarites W Wasterset Fe Iron Steining Immr Ended Bank Exx. Rights/ Other Steining Immr Ended Bank Exx. Rights/ Other Steining Immr Ended Bank Exx. Rights/ Other Steining Immr Ended Bank Exx. Rights/ Other Steining Immr Ended Bank Exx. Rights/ Other Steining Immr Ended Bank Exx. Rights/ Other Steining Immr Ended Bank Exx. Seprisoring Impress Tree Impress Tr |

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| | | | 58.39 | Stream Morph | ology (conti | | | 1.142 W. 83 | | 25 |
| Substrate (< = > | | | | | ! | | | a) Structure (* | | |
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| 60-30% Notes: | | | | <u> </u> | | | | | | |
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| No Obstructions | | Man-Made | | Observations | | | | | | |
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| Terrestrial featu | res Present | Yes | No | | | | | | | |
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| Terrestrial Recon F | orm Filles Ottl | Yes | (00) | | | | | | | |
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| Other General Co | mments Regarding the Study Are | ha: | | |
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| Study Area: | Jericho | | Watercour | _ L | Turbine# | | . 10. 1944 (1.20) . 10. 1944 (1.20) |
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| Hosizontal View o | of Channel | | XXXX | ¥ , y | | 2 | |
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| Salahe basis abasis da | | Garteral I | nformation | Field Crew | <u>r 3.14</u> | | The South State of the South |
| Study Area: Jericho | Goehen (Bluewater | | | | | 6E16-3 | |
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| Residential Agriculture Magniculture | Meadow | | Pe | ermittent ermanent phemeral | | Channelized Natural Chann | |
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| receives. Fields | | | · | | | pacent iter indicators | |
| 11AT (200). | AT(°C): | | ١, | Nater cres | . 🗆 | Bank Seepag | m (**1 / |
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| pH: Water Clarity: Cleer | Turbld | | 1 | Bubbling | | Other | |
| Notes: | | . Shahar L | (Grabology : | 40 100 | | ej ar mesusa | त्रकारका । |
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| No Obstructions Natural Description: | | Man-Made | ü | 1 | of Land To | pography within 12 | | | |
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| her General Co | ommants Regarding the Study Area: | · - | | | |
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| Study Area: Jericho | Goshen Bluewater Land Parcet* | 107010 | 16-3 |
| cos | Jan Jan Jan Jan Jan Jan Jan Jan Jan Jan | rior S | LEGENÓ 10d depth (cm) 8w width 8w width Pool Island/Bar Fan Subalrale 100c0 Cobale 10ccos *** Debth CT Cattell 8VIFY Schmerg/Fani Veg EV Emergent W Westworess 7e ton Swining 100s/10c dent >>>> Ropels/ Other Stoklaryton Cattering Tree ->> Seesonal Barrier > |
| Horizontal View of Channel | W. | - cattails | |

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| AECOM | | Page 1 of 4 |
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| AECOM | | Field Crew: SPL N |
| • | | al Information |
| Study Area. | oshen Blueweler Land Parce | el# 1853 Turbine # 5 E 16-27 |
| Date: 304 13 12011 | Start time: 9,00 | End Time: 9'55 |
| Veather Conditions: $\leq \!$ | m islight brooks. M | Field Notes By: 😘 🖰 . |
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| in-Situ Wai | er Quality | Ground Water Indicators |
| MT (°C): \ \ \ \ \ AT[' | | Watercress L Bank Seepage L |
| oH: 8.2 Con | <u>id (m)=/cm): 0,63</u> | Iron Staining LI None ZI |
| Water Clarity: Clear | ∑D turbid □ | Bubbling |
| | 2 July Land by a | own with a their on tops |
| Notes: Mariek 170 | x (8 1,200) 51 0 | occur and the same |
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| | Stream | m Morphology |
| šite Length (m): | | Bank Stability: |
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| Channel Dimenions | | Stable unstable unstable |
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| Flow Description: FIDIAN | ns varo a | ones charact and agrant |
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| Notes: resturalis | zed Channel | to high steep brains |
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| 30 W 1 | | | | Stream Morph | ology (contin | | | | 2000 |
| Substrate (< = >) Bo · Boulder Co · Cobble Gr · Gravel Sa · Sand Si · Sill | Descriptio | mk | 4 | | Notes: | Pool | Riffle | al Structure Run | /00 |
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| nstream Cover (| (0/) | | | Ha | bitat | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
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| | | Watercourt | s Sketch | | |
| Study Area: | Jericho | Goshen (Bluewater) Land Parcel#_ | 1853 | Turbine# | GE16-27 |
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| Study Area: Jericho Gosher Buewelst Land Parcells (30) 1080 Turbine \$ C.30 Area: Land Parcells (30) 1080 Turbine \$ C.30 Area: Land Parcells (30) 1080 Turbine \$ C.30 Area: Land Parcells (30) 1080 Turbine \$ C.30 Area: Land Parcells (30) 1080 Turbine \$ C.30 Area: Land Parcells (30) 1080 Turbine \$ C.30 Area: Land Routh (30) 10 | MODEA | | | | | | | | Page 1 of 4 | |
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| Study Area: Jericho Cosher Buewater Land Parcally (200, 100 Turbine 8 | | | · ···—·· | | 7 1 | f | ield Crew | : <u>SA</u> | <u>, (5) </u> | |
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| Easting: 449540 Northing: 481894 Description: 200 Descrip | | | | | | | | | | |
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| Burrounding LandusePollution Sources Type of Watercourse The Study Type of Water Channel Type of | | • | | | | | | - ' | | <u> </u> |
| Residential Meadow Welshad Sources Intermittent Permanent | | •- ^ | | | | | | | | |
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| Notes: (include any inputs into the system is. tile drainage, seepages, overland flow) In-Situ Water Quality | Residential | رت | | <u> </u> | | Int | | | | 63 7 |
| Notes: (include any inputs into the system is. tile drainage, seepages, overland flow) Continue | | | | | | 1 | | | | |
| In-Situ Water Quality Ground Water Indicators | | i i | CIVERIOGE | | | " | Niewer4: | | | |
| Water Clarity: Clear Turbid DY Notes: Green Colour Standy Streem Morphology Bank Stability: Channel Dimensions Mean Wetted Width (m): Mean Wetted Width (m): Mean Wetted Depth (m): Flow Description: Flow Description: Torbid DY Streem Morphology Bank Stability: Stable Slightly Moderately unstable unstable unstable Unstable Unstable Ceft Bank Mean Bankfull Depth (m): Flow Description: Torbid DY None Streem Morphology Bank Stability: Stable Slightly unstable Unst | | | | | | | G | | _ | |
| Water Clarity: Clear Turbid Notes: Green Colour Colour Streen Morphology Site Length (m): Channel Dimensions Stable Slightly unstable | | | AT(°C): | | | ┥ | | | | |
| Notes: Green Colour Col | pH: . | 18 | Cond (_/#/c | | , | _ | | - | | |
| Site Length (m): Channel Dimensions Stable Slightly Moderately Unatable unstable u | _ | | | | | <u> </u> | | | | <u> </u> |
| Channel Dimensions Stable Slightly unstable | <u> </u> | | AUK (| · (35) / (4) | | • | tv: | ••• | | |
| Channel Dimensions Mean Wetted V. 70 Mean Bankfull Wighth J. 0 Left Bank Wighth (m): Maan Wetted Depth (m): Flow Description: And And OCC. And And Coc. And And Coc. (Coc.) Notes: Tol. 1 - 3 - 5 - 5 - 5 - 6 | | 1 | | | | | ٠,٠ | €!!bede | 48 | |
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| Notes: TOBH-3.5-3.6m | Mean Wetted | 0.25 | Mean Bunk | iful Depth | | Right Bank | | ₫. | □ | |
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| gatrets (< > >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Cl - Clay Mic-Muck DT-Detritus Cither | Description | Si | | | Notes: | Pool | Riffe | Run | (%) Fint | |
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| dy Area: Jericho Goshan Bluewater Land Parcell 1853 | | |
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| AECOM | Flefd Crew: US, AO |
| | General Information |
| Study Area: Jericho Goshen Bluewater | and Parcei# Turbine # RLW-T1 - Nor |
| Date: July 29/11 Start Ume: | 8170 End Time: |
| Weather Conditions: | Field Notes By: |
| lain. | l 0/B |
| Poterior | Site Location |
| a . | |
| Contennial Rd eas. | 1-06 Babylan |
| | UTM Co-ordinates |
| Easting: AY 05-9/7 Northing: | 481 (a21) Description: Order |
| * * | |
| | Description: |
| Easting: Northing: | |
| Surrounding Landuse/Pollution Source | a Type of Watercourse |
| Residential 🗀 Meadow 🗀 | Intermittent |
| Agriculture 🔯. Wetland 🔲 | Permanent 🚰 Natural Channel 🗓 |
| Forest (Livestock [_] Other: | Ephemeral L. |
| Notes: (include any Inputs into the system i.e. tile d | A |
| - flowing - cot bankfu | il |
| Anna Carama | |
| | |
| In-Situ Water Quality | Ground Water Indicators |
| 1.7700 | Watercress Bank Seepage |
| NT (°C): AT(°C): | Iron Staining None |
| pH: Cond (s(cm); | Bubbling [Other [|
| Water Clarity: Clear Turbid | |
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| Notes: W/q done on S | outh side. |
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| | • |
| | Stream Morphology |
| Site Length (m): / 17 m | Bank Stability: |
| • | Stable Slightly Moderately Unetable |
| Channel Dimensions | Stable unstable unstable |
| Mean Wetted Mean Bankfull Width | ⊋ Left Bank № LI □ □ |
| 1 | _ ` |
| Wean Wetted 5 Septh (m): Wean Bankful Depth | O,5 Right Bank 24 E C C |
| Depth (m): V' =](m): Flow Description: | |
| | the set by the design section |
| TAST Blowing, A | slowing at bankfull due to rain |
| event in ma | - mina |
| Notes: | |
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| AECOM | | | | | | | | Page 2 of 4 | | |
|--|-----------------|-------------|--------|------------------------|------------------|--------------------|----------------------|---------------------|-------------|--|
| | | | | Stream Morph | ology (conti | otied) | · | | | |
| Substrate (< ⇒ >) Bo - Boulder Co - Cobble Gr - Gravet Sa - Sand Si - Sill Cl - Clay MK-Muck DT-Detritus | Descriptio | | | Ja | | | forphotogi Riffie | Run | %) Flat | |
| Other | | | | Не | abitat | | | · | | |
| Instream Cover (* None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | | |
| | 20 | | | 10 | 20 | Shru | 65 - | 50 | | |
| Co | « | | | Trans 1.5 | | | | | | |
| Canopy Cover (% | Closed cov | | b∡l | Types of Cov | | | | Man-made | , | |
| 100-90% 80-60% 80-30% | | 30-1% 0% | | Trees Grasses | | adurne ceopdreH | <u> 10-D</u> | structures Other | · | |
| Notes: | | | | | | | | | | |
| | ctions to Fi | sh Passage | | 1 | Drain | age Featur | es within S | tudy Area | | |
| No Obstructions Natural | | Man-Made | 1 | Observations | | | | | | |
| Description: | | | | N&N | ' - B | /a± | to P & | ze a jehn | | |
| Terrestrial feature | es Present | Yeş | (No | | | " ' | | | | |
| Terrestrisi Recon Fo | rm Fifled out | Yes | No | | | | | | | |

| AECOM | July 29/11 | | Page 3 of 4 |
|---------------|-----------------------------------|--|---|
| er General Co | omments Regarding the Study Area: | | |
| - Cul | vert 2m - water bish barrier | flowing th | wough i'r not a |
| | | noto log | |
| Picture# | Description | Picture # | Description |
| 3 | overien | | |
| 4 | gravien | | |
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| AECOM - | | _ | Page 4 of 4 | 4 |
|--------------------|---------------------------------------|-------------------------------|---------------|---|
| | | Watercourse Sketch | | |
| Study Area: | Jericho | Goshen Bluewater Land Parcet# | Turbine# BLW_ | TI-North |
| Crop | , , , , , , , , , , , , , , , , , , , | 7 1 | OP | LEGEND 10d dopth (cm) 6w width 6w width 6wth 6wth 10d dopth (cm) 6wth 6wth 10d dopth (cm) 6wth 10d 10d 10d 10d 10d 10d 10d 10d 10d 10d |
| Horizontal View of | Channel | | Jan | |

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| AECOM | <u> </u> | <u> </u> | | | | Page 1 of | | |
|-------------------------------------|---|-----------------------------|---------------------------|------------------------------------|----------------------|-------------------------|-------|---------------------|
| | | Generati | Fleid Crew: (K), AD | | | | | |
| Study Area: Jericho | Goshen Bluewater | Land Parcel# | | _= | | . 13 L | 1+1 | 1-20w |
| Date: 5 July 29/ | t. Start time: | | | | nd Time | | 1 | - <u>- 740</u> |
| , , | <i>y</i> 1 | _ V V | Field Notes | | | <u> </u> | | |
| Weather Conditions: りぃer いん | ci | | Lidio Mores | US. | | | | |
| • | • | | | | | | | |
| Centernial | In east | of Par | ocation Dy (an | | | | | |
| | | | -ordinates | | | <u> </u> | | |
| Easting: 045 09 | [7] Northing: | 48162 | 2 <i>11</i> | £60 | escripti | on: <u> </u> | the c | rest. |
| | Northing: | | | | escripti | | · . | |
| Easting: | Northing: | | | 0 | escripti | on: | | |
| Easting: | Northing: | | | | escripti | | | |
| Surrounding L | enduse/Pollution Source | 6 | | ו" "ו | ype of | Natercourse | , | |
| Realdential Agriculture 54 Forest 1 | Meadow II Welfand III Livestock III | | P | termittent ermanent phemerat | | Channeli Natural Cha | | |
| Notes: (Include any Inpuls | into the system Le. tile di | raipade, seep | l | nd flow) | | | | |
| - there | rated. | | | | | | | |
| In-Si | to Water Quality | | | Gr | ound W | ater Indicate | re | |
| NT (°C): 7/11 | AT(°C): | | | Watercress | | Bank See | page | n |
| н: 7.59 | -+ | 38 | | Iron Stainin | σ 🔲 | None | | <u></u> |
| Water Clarity: Clear | Li Turbid | <u>, 20</u> <u>1</u> 24. | 1 | Bubbling | ¨□ | Other | | |
| votes: | brown | | | | | | | |
| | | | | | | | | |
| iite Length (m): ~ 뉘(| Jm | Ştream h | dorphology Bank Stabil | lty: | | | | |
| Channel Dimensions | | | | MIAMIO | Siightly unstabli | | | ıstabl o |
| Mean Wetted 2 | Mean Bankfull Width (m): | 2 | Left Sank | Œ | Ц | 1 | | II |
| Mean Wetted ().5 | Mean Sankful Depth (m): | 0.5 | Right Bank | ವ | | | | ដ |
| Flow Description: +W | + Flow, | Plowing | M | bank | bull | dus | J. | large |
| | in event in | | | | - | | | |
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| Substrate (< = >) Bo - Boukter Co - Cobble Gr - Gravel Sa - Sand Si - Silt | Description | - • | | Stream Morpho | logy (contir | | | |
|--|------------------|------------------------|-----------------|------------------------|----------------------------|----------------------|---------------------------------------|-------|
| Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand | | _ | , | | ı - ' ' ' ' ' ' | | | _ |
| CI - Clay MK-Muck DT-Datritus Other | - ha → w | n 4 posi onter : | sible Loo hi | 'igh | Notes: | Morpholo Popi Riffte | gical Structure (%) Run F | lat . |
| | | | | Ha | bitat | | | |
| nstream Cover (| <u>%) 50</u> | | | 1 | | | · · · · · · · · · · · · · · · · · · · | |
| Nons | Woody Debris | Soulders | Cobble | Aquatic Vegetation* | Undercut Bank | | Other: | |
| | 30 | | | 10 | 型0 | Shoubs. | 5 ⁻⁷ | |
| Canopy Cover (% 100-90% | closed cov | /өт): 39-1% | _D Z3 | Types of Cove Trees | | Shrubs / 00 | Man-made | |
| 90-60% 60-30% | | 0% | П | 1 | | Herbaceous | structures Other | |
| Votes: | | | | | | | | |
| Obstru | ctions to Fi | sh Passage | | | Drains | ge Features within | Study Area | |
| No Obstructions Naturat | ⊠ - □⊐ | Man-Made | ŢŢ | Observations | of Land Top | ography within 12 | 0 m buffer area: | |
| Description: | | | | /1.09 | he no | ited. | | |
| | | | | | | | | |
| errestrial featur | es Present | Yes | (NO) | | | · *** -/ | | |

AECOM

Other General Comments Regarding the Study Area:

— 2 in tulway -> water flowing through - not a fish barrier

— 6 r og notwo

| Photo log Picture # Description Picture # Description | | | | | | |
|---|----------------------|-----------|---------------------------------------|--|--|--|
| Picture# | Description | Picture # | Description | | | |
| 1 | South - looking up/s | | | | | |
| 2 | lt | | | | | |
| 3 | North - dun/s | | | | | |
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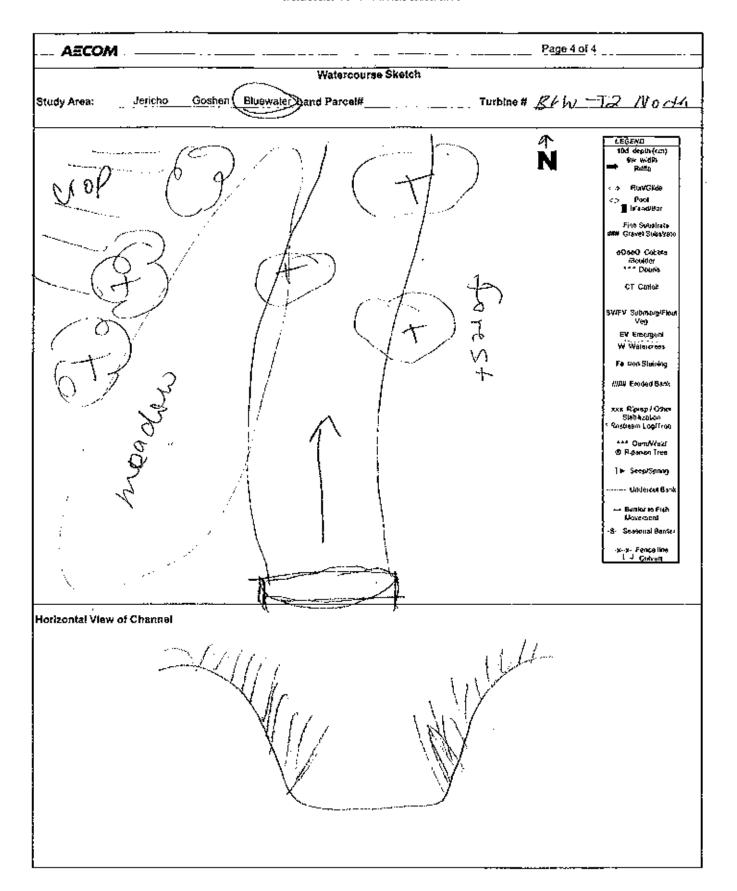
Augus Human, \$8656617

| Watercourse Skelch | |
|---|--|
| Study Area: Jericho Goshen Bluewaler Land Parcel# Turbine#- DL L. | =T1-South |
| Horizontal View of Channel Assimply Am | LEGENP Tod depth (cm) The depth (cm) The Match Fine Subspace Fine Subspace Gravel Subspace Gravel Subspace Gravel Subspace CT Castal SVEV Subspace EV Emergent W Waterpress Fe aren Sataring IMAN Erected Barch AXX Repray / Duky Satat- ration **Approach Log/Tron **A Demandar Free **Soup/Space **Burner to Free Movement **S Seasonas Bander -x-x- Fonce Ring Culven |

| A≣COM | Page 1 of 4 |
|---|--|
| | Fleld Crew: (1B AD |
| | General Information |
| Study Area: Jencho Gosnen alliewater Land | Parcel# Turbinam BLW & TQ - North |
| Date: July 29/4 Start time: 8 | · |
| Weather Conditions: | Field Notes By: |
| Rain | |
| Centernial Rd. west of | Pair Ln. |
| | UTM Co-ordinates |
| Easting: 0451166 Northing: 4 | 816242 Description: North Culvert |
| _ | Description: |
| Easting: Northing: | |
| Eastino: Northing: | Description: |
| Surrounding Landuse/Pollution Sources | Type of Watercourse |
| Residential 🗀 Meadow 🗀 Agriculture 📆 W Wetland 🗀 Forest और HULlvestock 🗀 Other: | Intermittent 🔲 Channelized 🗎 Permanent 🔀 Natural Channel 🗯 |
| | |
| In-Situ Water Quality | Ground Water Indicators |
| NT (°C): AT(°C): | Watercress 🗀 Bank Geepage 🗀 |
| oH: Cond (s/cm): | Iron Staining 🗀 None 💆 |
| Water Clarity: Clear EI Turbid (| Subbling LI Other LI |
| Notes: brown, Voldy , by | of done on South side. |
| | Stream Morphology |
| lite Length (m): ~(00 m | Bank Stability: |
| | Stable Slightly Moderately Unstable |
| Channel Dimensions | unstable unstable |
| flean Wetted ASS Mean Bankfull Width A | 73,5 Left Bank 🗷 🗆 🗆 |
| Mean Welled 0.5 Mean Bankful Depth (m): | .5 Right Bank 12 - well regetated |
| flow Description: -bast blowing, blowing | ng at bankfull |
| Notes: | |
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| A.ECOM | | | - - - | | | | 1 | Page 2 of 4 | |
|---|-----------------|--------------|------------------|------------------------|------------------|------------|------------------------|----------------------|--------|
| · | | | | Stream Morph | ology (contin | nued) | | | |
| Substrate (< = >) Go · Bouder Co · Cobble Gr · Gravel Sa · Sand Sl · Sill Cl · Clay MX·Muck DT-Detrates Other | Description | v 400 i | | | Notes: | _ | torphologica Riffie | Structure (%) Run Fi | at . |
| O Mos | | | | | | | | | |
| | · | | | Ha | bital | | | | |
| Instream Cover (| %) (1) | | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | 1 | Other: | |
| | | | | 18-0 | | | | | |
| *Aquatic Vegetat | ion Types P | resent (alga | e, submer | gent, emergen | t etc.) | • | | | |
| | - Q) | mer ye | n d | grass. | o \$ | | | | |
| Canopy Cover (% | closed cov | er); | | Types of Cov | er (% cover) | | | | |
| 100-90% | ∺ | 30-1% | غک ل | | | | 20 | Man-made | |
| 90-90% 60-30% | | 0% | | Grasses | 70 | Herbaceo | tie. | structures | |
| Noles: | | | | | | | | | |
| Obstru | ctions to FI | sh Passage | . | ī | Drain | age Featur | es within Str | idy Area | |
| No Obstructions Natural | EXI CI | Man-Made | | Observations | | | | | |
| Description: | | | | none | 1759 | ted. | blox | Kopogra | phy |
| Terrestrial featur | | | (NO) | | | | | | A 1876 |
| | | | | | | | | | |

| AECOM 5 (Gy 29/11 BLW t) Page 3 of 4 ther General Comments Regarding the Study Area: Water Course flowing at bornsplus Photolog Ploture # Description Plature # Description / North - Stream 2 11 | AECOM | 5 (by 29/11 | BLH |) †ጋ | (A)- | Page 3 of 4 | |
|---|-----------------|---------------------------------------|-------|---------|------|-------------|-----------|
| Picture # Description Picture # Description North -odineon | ther General Co | omments Regarding the Study Area: | bonig | Rel | | | • |
| Picture # Description Picture # Description North -odineon | | | Photo | log | | | |
| | Picture# | Description | P | iclure# | | Description | |
| | / | North-odreon | | | | | |
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| AECOM | Page 1 of 4 |
|---|-------------------------------------|
| | Fleld Crew: (K, AH) |
| | neral information |
| | Turbine # BLW-T2 South |
| | 32 End Time: |
| Weather Conditions: | Fletd Notes By: |
| (310, OUS COS) | AiDelt |
| 30042 of Centennia | Stie Exception 1, east of Babylon |
| _ | M Co-ordinates |
| Easting: 0451172 Northing: 48 | 16248 Description: From (08cl |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Surrounding Landuse/Pollution Sources | Type of Watercourse |
| Residential CI Meadow CI Agriculture CI Wetland CI Forest CIvestock CI Other: | Intermittent |
| Notes: (include any inpute into the system i.e. tile drainage, | seepages, overland flow) |
| None observer. | |
| | · |
| In-Situ Water Quality | Ground Water Indicators |
| WT (°C): 2013 AT(°C): 18 | Watercress 🏻 Bank Seepage 🗀 |
| pH: 7.05 Cond (1/s/cm): 0.52 | Iron Staining LJ None |
| Water Clarity: Clear L Turbid | Bubbitag Lij Other |
| Notes: Two to rain, wat | |
| Str. | eam Morphotogy |
| Site Length (m): 280m Uisible from road | Bank Stability: |
| Sharrat Bitara alam | Stable Slightly Moderately Unstable |
| Channel Dimensions Mean Wetted L, O Mean Bankfull Width C. C. Width (m): | Left Bank 🖾 🗀 🖂 |
| | - · |
| Mean Wetted O. C. Mean Bankful Depth O. (m): | Right Bank 🔯 11 🗇 🖂 |
| Flow Description: | 131 |
| Fast flow @ bankfull wid | q)N |
| NOTES: NO COLUELT, JOST CONCLETE | e bridge IT] |
| 1 | 3. 1 |

F-8/4 | Werlan | 600530 |

| AECOM | | | | | | Page 2 of 4 |
|--|----------------------|------------------------|--------|------------------------|------------------|---|
| | | | | Stream Morpho | niogy (conti- | theur |
| Substrate (< = >) Be - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Si'l Ci - Clay MK-Muck DT-Definius Other | Description DUE NO | | | flow ected We | Notes: | Morphological Structure (%) Pool Riffle Run Fiel \CO |
| | \sim | ·· | | Ha | bilat | |
| Instream Cover (| %) d | \bigcirc | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: |
| | 15 | | | 5 | | |
| Cenopy Cover (% 100-90% 90-60% | 13 13 | er): 30-1% 0% |)AI | | UQ. | Shrubs (Man-made structures Herbaceous Other |
| 60-30% Notes: | <u>נו</u> | | | <u> </u> | | |
| Obstructions No Obstructions Natural Description: | ctions to Fit | sh Passage Man-Made | ū | | of Land Top | ige Features within Study Area rography within 120 m buffer area: FICE A COST |
| Terrestrial featur Terrestrial Recon Fo | | Yes | No | 1.10 | (! Or | pleted |

| AECOM | J Wy 29/11 | | Page 3 of 4 |
|-------------------|--------------------------------------|--|---|
| other General Cor | mments Regarding the Study Area: | | |
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| ···\ | | Photo log- Picture # | |
| Picture # | Description | Picture# | Description |
| 5 | Description (N) EVJ EWOF COURT | | |
| / | close up of | | |
| O | South | | |
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| AECOM | | | Page 4 of | 4 |
|----------------------------------|--------|-----------------|--------------|--|
| | Wate | ercourse Sketch | ··· | |
| Study Area: <u>Jericho</u> Gosha | | | Turbine# 🔂 🔱 | Tz-South |
| Foed / | | Tiggien V | N.V. | LEGGND 193 depth (rm) 6w width Rifflo 2 ReaChise Soot Instance Reach Sobstate Rifflo 2 Reach Substate Rifflo 2 Reach Substate Rifflo 2 Reach Souther Rifflo 2 Reach Souther Rifflo 2 Reach Rifflo 2 Reach Rifflo 2 Reach Rifflo 2 Reach Rifflo 2 Reach Rifflo 2 Reach Rifflo 3 Reach Rifflo 3 Reach Rifflo 4 Reach Rifflo 5 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 6 Reach Rifflo 7 Reach Rifflo 8 Re |
| Horizontal View of Channel | o (A. | ٠, | .11 | |
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Proposition

| AECOM | Page 1 of 4 |
|---|--|
| | Field Crew: (X) , A(O) |
| | General Information |
| Study Area: Jericho Gosnan (Bluewater) and | Turbine # BUN-T3 - North |
| 1 0 | 92 90 End Time: |
| Weather Conditions: | Field Notes By: |
| Rain, 18°C | |
| 1 | Site Location |
| Centennial Rd 1 | 13 annockburn + Gully |
| | UTM Co-ordinates |
| Easting: 0454570 Northing: L | 4816725 Description: North Side |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Surrounding Landuse/Pollution Sources | Type of Watercourse |
| Residential | Intermittent ☐ Channellzed ☐ Permanent ☑ Natural Channel ☑ |
| Forest 🖾 🖂 Livestock 🖽 | Ephemeral 🔲 |
| Other: | |
| Notes: (include any inputs into the system i.e. tite draina | |
| -gullies noted on E+h | J est 57 00 |
| | |
| In-Situ Water Quality | Ground Water Indicators |
| kinan | Watercress L.1 Sank Seepage [7] |
| WT (°C): AT(°C): | Watercress L. Bank Seepage [7] Iron Staining D. None |
| pH: Cond (s/cm): | Bubbling [] Other |
| Water Clarity: Clear 🗀 Turbid 🕽 | |
| Notes: W/a dang on South | Sida |
| 1 10/9 | S. O. C. |
| | |
| | Stream Morphology |
| Site Length (m): 100 m | Bank Stability: |
| - | Slightly Moderately |
| Channel Dimensions | unstable unstable |
| Mean Wetted 15 Mean Bankfull Width 16 Width (m): | |
| | 53 T7 53 14 |
| Mean Wetted n / a Mean Bankful Depth n / n / (m): | A Right Bank 137 13 C |
| Flow Description: | |
| - bast flouring. I | lowing just below bank food |
| [[[[[[[[[[[[[[[[[[[| Wining Just Door Dank Prom |
| Notes: | |
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| AECOM | | | | | | Page 2 of 4 |
|--|---------------------------|------------------------|--------------|-----------------------------------|----------------------------|--|
| · · · · · · · · · · · · · · · · · · · | | | | Stream Morpho | logy (config | ued) |
| Substrate (< = >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand SI - Stit CI - Clay MK-Muck DT-Debritus Other | Description - M | n at pas | sible | | Notes: | Morphological Structure (%) Pool Riffie Run Flat |
| | | | • | Ka | bitat | |
| Instream Cover (? None | Woody | Boulders | Cobble | Aquatic | Undercut | Other: |
| - | Pobris | | | Vegetation* | - nund - nund rvoted | |
| Canopy Cover (% 100-96% 90-86% | | /er): 30-1% 0% | 1⊴ LJ | Types of Cove Trees Grasses | | Shrubs 40 Man-made structures Herbaceous 70 Other |
| 60-30% Notes: | | | | | | |
| | | | | | | |
| Obstruc | Jione to Si | en Pageann | | | | 00 Eaglures within Study Aven |
| Obstructions No Obstructions Natural | silone to Fis E⊠ LJ | sh Passage Man-Made | ₽ | <u> </u> | of Land Top | ge Features within Study Area ography within 120 m buffer area: |
| No Obstructions | | _ | □ | <u> </u> | of Land Top | |

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Other General Comments Regarding the Study Area:

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BLW-13-N

Page 3 of 4

or General Comments Regarding the Study Area:

Water flowing first bellow bankfull

| FIT-1 | Donatalian | Photo log Picture # | |
|-----------|------------------------|------------------------|--------------|
| Picture # | Description | Picture # | Description |
| 1 | overall | | .• |
| | overar | | |
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| ر <i></i> | . 001 1 - 1 | l i | |
| 5 | May park | | |
| 3 4 | west bank last bank | <u> </u> | F. L |
| 9 | -Past bank | | |
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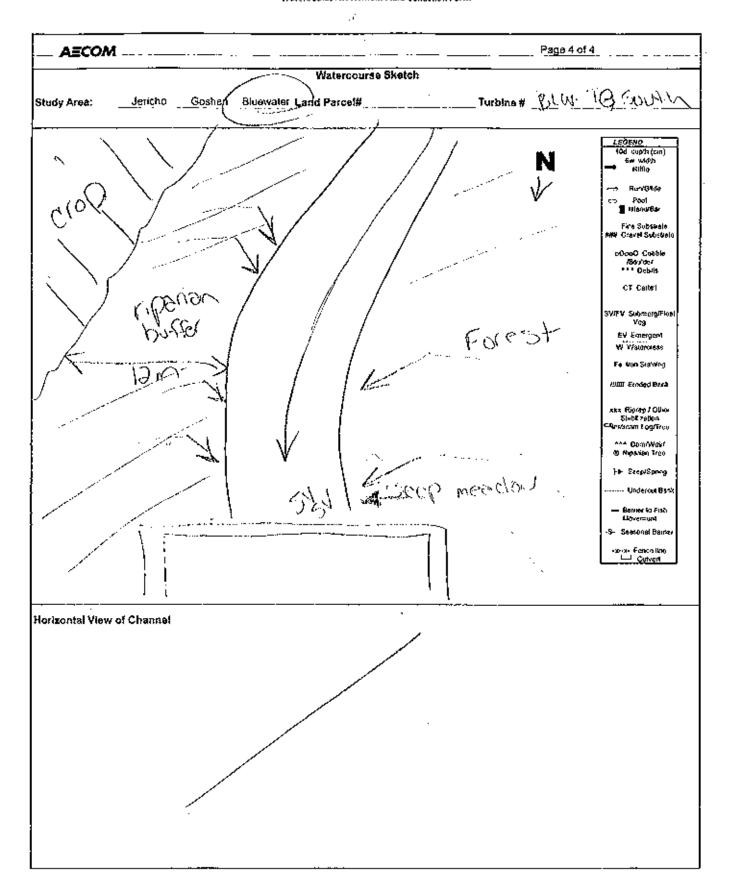
| A#COM | Page 4 of 4 |
|--|---|
| Watercourse 5 | 3ketch |
| Study Area: Jericho Goshen Biuewater) Land Parcel# | Turbine # BLW T3 Worth |
| Horizontal View of Channel | 2.26 END 100 depth (cm) 5 w width Riffle 100 Reput 100 depth (cm) |

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| AECOM | Page 1 of 4 |
|---|---|
| | Field Crew: |
| | Information |
| Study Area: Jericho Goshen Biuewater Land Parcell | Turbine# BLW-T350Uth |
| Date: 201429,2011 Start time: 8:6 | End Time: |
| Weather Conditions: | Field Notes By: |
| 16:0 4 onaces) | A.Dat |
| Site | Location |
| Centennial id >> ex | est of Bennaekburn id. |
| · · · | o-ordinates |
| Easting: OMS 45 15 10 Northing: 4816 | Description: (COO) |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Sasting: Northing: | Description: |
| Surrounding Landuae/Poliution Sources | Type of Watercourse |
| Residential Meadow Magriculture Wetland Company Compan | Intermittent |
| Notes: (include any inputs into the system i.e. tile drainage, seep でいうべくだっしい いっかい いっかい (のつ) (いっかい | outh side from Eccolon |
| In-Situ Water Quality | Ground Water Indicators |
| WT (°C): 21. 1 AT(°C): 18 | Ground Water Indicators √○ ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← |
| | Iron Staining 20. None |
| pH: [t / Cond (Me/cm): C / | Bubbling 🖂 Other |
| Water Clarity: Clear 🎞 Turbid 🗀 | |
| Notes: Due to 18in water ler | |
| Site Length (m): 1000 USIVIC F-10M | Morphology Bank Stability: |
| 1004 O(210)6 24014 | |
| Channel Dimensions | Stable Slightly Moderately Unstable unstable |
| Mean Wetted Mean Bankfull Width (m): | Left Bank 🖾 🗆 🗆 |
| Mean Welted Nepth Mean Bankful Depth Oppth (m): | Right Bank D LI LI LI |
| Flow Description: - 1851 - 100 alw | 105+ bankfull width |
| Notes: | |
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| AECOM | | | | | | | | Page 2 of | 4 | | |
|--|-----------------|------------------------|------------|-----------------------------------|-------------------------------|--------------|---------------------|-------------------------|----------|-----------|---|
| Substrate (< = >) Bo - Boulder Co - Cobkle Gr - Gravel Sa - Sand Si - Skt Cl - Clay MK-Marck DT-Detritus Other | | r Verto | | Stream Morpho | | | forpholog Riffle | cal Structur Run | re (% |) Flat | |
| | | | | Ня | bilat | | | | | ···· | |
| Instream Cover (| <u>w</u> 2 | <u>. U</u> | | | | · | | | | | 1 |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | | | |
| | 10 | | | 10 | | | | | | | ! |
| Canopy Cover (% 100-96% 90-66% 60-36% Notes: | closed cov | er): 30-1% 0% | £1- | Types of Cove Trees Grasses | 9r (% cover) | _ | | Man-mi structu Ot | | | |
| No Obstructions | ctions to Fi | sh Passage Man-Made | | Observations | of Land Top | ography (| vilhin 120 | | | | |
| Natural Description: | £t | | | 175 | Hows etal etal x ros | 20.4 69.4 | 2360 34 219 | e si | () (} | 10(- |) |
| Terrestrial featur | · <u>-</u> | Yes | No (No) | etc | . COM |)le.te(|) | | | | |

| AECOM | 3 | | Page 3 of 4 |
|------------------|--|---------------------|---------------|
| Other General Co | omments Regarding the Study Area: | · | |
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| Picture # | Pho Description | to log Picture # | # Description |
| 1 | Overview south | | |
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| -•A≝COM | | Page 1 of 4 |
|---|---|--|
| | | Field Crew: (%, A) |
| | | neral Information |
| Study Area: Jericho | Land Pa | rcel# Turbine# KW2TY-NoN-6 |
| Date: July 29/4 | Start time: 9; (| End Time: |
| Weather Conditions: | | Field Notes By: |
| (Coin | | US I |
| <u> </u> | ······································ | Sile Location |
| Canadania | d - gist east of | London Rd. |
| | זט | M Co-ordinates |
| Easting: 045 8 | 898 Northing: 48 | 1735 & Description: read side - mi dela t |
| Easting: | | Description: |
| Easting: | | Description: |
| Easting: | Northing: | Description: |
| Surrounding 1 | Landuse/Pollution Sources | Type of Watercourse |
| Residential Agriculture | Meadow [] Wetland [] Livestock [] | Intermittent |
| Other: (AMA) | into the system i.e. tile drainage, | |
| | | |
| In-9 | Itu Water Quality | Ground Water Indicators |
| | ···, — | Ground Water Indicators Watercress Mank Seepage |
| MT (°C): | AT(°C): | |
| WT (°C): | AT(°C): Cond (s/cm): | Watercrees Me Bank Seepage I from Staining II None I Bubbling II Other |
| WT (°C): pH: Water Clarity: Clear | AT(°C): | Watercrees Me Bank Seepage I from Staining II None I Bubbling II Other |
| WT (°C): PH: Water Clarity: Clear Notes: WA S G | AT(°C): Cond (s/cm): AD road Side Turbld (also Ath S' d) Stre | Watercrees Me Bank Seepage I from Staining II None I Bubbling II Other |
| WT (°C): pH: Water Clarity: Clear | AT(°C): Cond (s/cm): AD road Side Turbld (also Ath S' d) Stre | Watercrees M Bank Seepage from Staining II None Bubbling II Other CA - (v) for tind the purchased Site |
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| Water Clarity: Clear Notes: W. S. O. Site Length (m): S. O. Channel Dimensions | AT(°C): Cond (s/cm): AD road Side Turbld (all a s/ch) S' d' | Watercrees Bank Seepage I from Staining I None I Bubbling I Other I was Low Low Low Syle iam Morphology Bank Stability: Stable Slightly Moderately Unstable unstable |
| Water Clarity: Clear Notes: W. S. O. Site Length (m): S. O. Channel Dimensions Wean Wetted | AT(°C): Cond (s/cm): AD road Side Turbld (also Ath S' d) Stre | Watercrees Bank Seepage I from Staining I None I Bubbling II Other I was Low Low Low Silf I was Morphology Bank Stability: Stable Stightly Moderately Hostable |
| WT (°C): DH: Water Clarity: Clear Notes: W S S | AT(°C): Cond (s/cm): AS road Side Tarbid (A) A Ath S of (Street): Mean Bankfull Width (m): | Watercrees B Bank Seepage I from Staining II None I Bubbling II Other I was A - (v) for tind 14 (own April 5) fo |
| WT (°C): pH: Water Clarity: Clear Notes: W S O Site Length (m): S O Channel Dimensions Mean Wetted Width (m): 0.5 Mean Wetted Depth (m): 0.2 | Mean Bankfull Width (m): Mean Bankfull Dapth (2) | Watercrees B Bank Seepage I from Staining II None I Bubbling II Other I was A - (v) for tind 14 (own April 5) fo |
| WT (°C): Water Clarity: Clear Notes: WM, SQ Site Length (m): WSQ Channel Dimensions Mean Wetted Width (m): WSQ Mean Wetted Q, 2 (Plow Description: Square | Mean Bankfull Width (m): Mean Bankfull Dapth (2) | Watercrees B Bank Seepage I from Staining II None I Bubbling II Other II Left Bank Bank Bank Bank Bank Bank Bank Bank |
| WT (°C): pH: Water Clarity: Clear Notes: W S O Site Length (m): S O Channel Dimensions Mean Wetted Width (m): 0.5 Mean Wetted Depth (m): 0.2 | Mean Bankfull Width (m): Mean Bankfull Dapth (2) | Watercrees B Bank Seepage I from Staining II None I Bubbling II Other II Left Bank Bank Bank Bank Bank Bank Bank Bank |

| Co - Cobble Gr - Gravel Sa - Sand Si - Silt | escription | | . 1 | Stream Morpho | logy (conti | rued) | | | | | _ |
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| Bo - Boukter C Co - Cobble Gr - Gravel Sa - Sand Si - Silt | escription | | | • | ' | | | | | | |
| GI - Clay MX-Muck DT-Detritus Other | cI, | | mch> | <i>(</i> 679) | Notes: | Popl | orphologic Riffle | Run | | Flat | |
| | | | | На | bilat | | • | | | | |
| Instream Cover (%) | 65 | | ~~~~ | | | | | | | | 7 |
| None | Woody Debris | Boulders | Cobbie | Aquatic Vegetation* | Undercut Bank | | | Other: | | | |
| | | | av | 80 | | | | | | | |
| 100-90% 90-50% 60-30% Notes: | u Max vta V | 30-1% 0% | וו וו מ ג≽וף | Frees Grasses | [/MO] | | | efractur Oth | | | |
| | lons to Fis | ih Passage Man-Made | اسا | Observations | Drain | age Featur | | _ | 1 : | | |
| Description: | | | | ·· qu | the 6 | 2 0 | ulyen | Αs | | | |
| worde fl | mine | throu | gK | ď | | 0 | | | | | |
| culver | W \$ | n 410 | ኢ | | | | ···· | | | | *** |
| Terrestrial features | Present | Yes | 6 | | | | | | | | |
| | n filled out | Y e s | ~85h | ' | | | | | | | |

July 29/10 BCW-74 N. Page 3 of 4 **AECOM** Other General Comments Regarding the Study Area: Photo log Picture# Description Picture # Description * See mar J

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| AECON | Page 4 of | 4 |
|-----------------|--|--|
| | Watercourse Sketch | |
| Study Area: | Jericho Goshen Bluewater hand Parcel# Turbīne # BLW | -T4 Mark |
| (fic) | Crop Crop Constant of the Crop | LEGEND Tod dopths (cm) For widdy Nome RunVGlob Pool It istraction Fine Substrate and Gravel Substrate and Gravel Substrate about Colotie Abou |
| Horizontal Vlew | of Channel bank finds | |

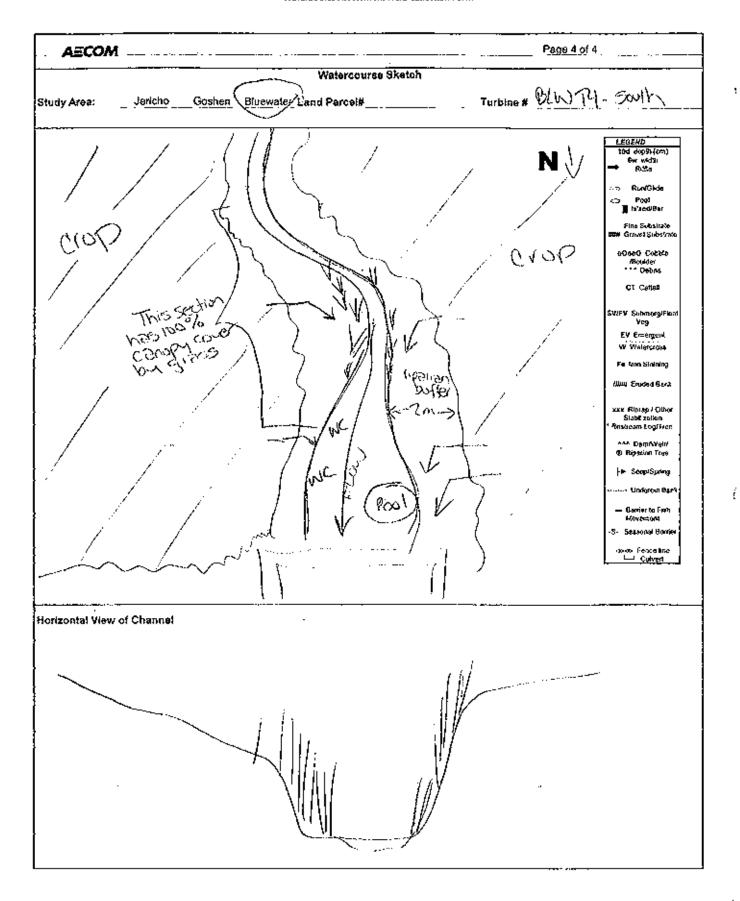
| AECOM | Page 1 of 4 |
|---|----------------------------------|
| | Field Crew: |
| , \ | Turbine # BLW-TY SOUTH |
| Date: JUM 29, 2011 Start time; 9 | End Time: |
| l | Field Notes By: |
| Weather Conditions: 11377 1317 | A.Dat |
| Dit. | |
| Centennial 1030, E35+ 05 | Location / cmclcc |
| | |
| HTM C | ordinates |
| Easting: 0158819 Northing: 4817 | · |
| | |
| Easling: Northing: Northing: | · |
| | Description: |
| Easting: Northing: Surrounding Landuse/Pollution Sources | Description: Type of Watercourse |
| Residential 🔲 Meadow 🖂 | Intermittent LI Channelized 🔀 |
| Agriculture 121 Wetland 🗀 | Permanent DK Natural Channel C |
| Other: | Ephemeral 📶 |
| Notes: (include any inputs into the system i.e. tile drainage, seep | |
| MC on EB 2004U 21G. | ?<@>>) |
| WC on RB 300475ide. | USZ YM SWEXUN |
| In-Situ Water Quality | Ground Water Indicators |
| <u> </u> | |
| WT (°C): 1 9 9 AT(°C): 18 | Watercress 🖾 Bank Seepage 🗀 |
| pH: 7.04 Cond (rva/cm): (. 45 | Iron Stating CI None |
| Water Clarity: Clear 🖂 Turbid 🗖 | Bubbling Cher [2] |
| Notes: Medium flow, torbi | 1 due to com |
| | o doc to ton. |
| | |
| Stream: | Morphology |
| Site Length (m): \sim 50 m | Bank Stability: |
| | Stable Slightly Moderately |
| Channel Dimensions | unetable unstable Onstable |
| Mean Wetted Width (m): Mean Benkfull Width (m): | Left Bank 🗇 🤼 🗓 🗇 |
| Mean Wetted Mean Bankful Depth Copth (m): | Right Bank XI LJ 🗖 111 |
| Flow Description: | |
| median-flow, flow no | octo |
| ' | · |
| Notes: | |
| Coment bridg It II in | bad shape |
|] ' ' ' | Comment of Comments |

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| AEÇOM | | | | | | | | Page 2 of 4 | |
|---|------------------|---------------|------------------|------------------------|------------------|------------|-----------------|--------------------|-----------------|
| · · · · · · · · · · · · · · · · · · · | | | | Stream Morph | ology (popti | nued} | | | |
| Substrate (< = >) Be - Boulder Co - Cobbse Gr - Gravel Sa - Sand Si - Sril Cl - Clay MK-Muck DT-Detrilus Other | Description | 9016 Je 70 | [xec | Projection | Notes: | Paol | Riffle | Run 90 LB b | Flat |
| - | 63 | ~ | | He | bitet | | | | |
|) Instream Cover (* | %) "1. | S) | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | | | | 95 | | | | | |
| Canopy Cover (% | | | ea C | Types of Cov | | | ·iv Ch | gwe Y | |
| 100-90% | N. N. | 30-1% | | Trees | | Shrubs | 100 | Man-mad | |
| 90-60% 60-30% | 7* [] [] | 0% | ij | | .୩ଘ | | 1.5.1 | structure: Othe | |
| | | sh Passago | ハックシ | · | Drain | ege Featur | es within S | tudy Area | |
| } | 3.4 | - | ш | 0> | | _ | | _ | |
| No Obstructions Natural |) <u>- 1 - 1</u> | Man-Made | | Observations | or Land (of | | | | |
| Description: | | | | | | F)e | 450 : i+ eid | sdops ob Ja | nd : O banks |
| Terrestrial featur Terrestrial Recon Fo | | | (ND) | > | | | | | |
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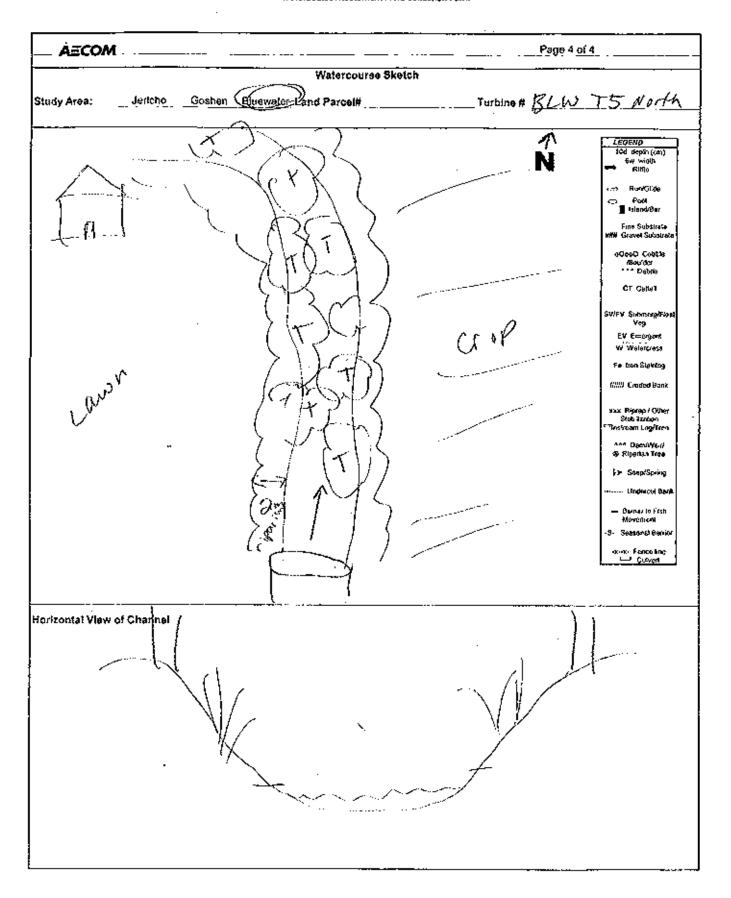
| AECOM | Page 1 of 4 |
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| ASCOM | Fletd Crew: (18, AO |
| The state of the s | eneral Information |
| Study Area: Jericho Goshen (Bluewald) Land F | Parcell Turbine # BW T5 - NGCH |
| Date: July 89/11 Start time: 915 | |
| Neather Conditions: | Field Notes By: |
| (Cain | US |
| | Site Location |
| Centennial Rd - East of 1 | tendon Rd. |
| | JTM Co-ordinates |
| Easting: 045 9 645 Northing: 431 | 7469 Description: 109d Side |
| | Description: |
| | |
| Easting: Northing: Easting: Northing: | Description: |
| Easting: Northing: Surrounding Landuse/Pollution Sources | Type of Watercourse |
| Residentiat 🕍 Meadow 🔲 Agriculture 🖾 Wetland 🗍 Forest 🖺 Livestock 💭 | Intermittent Channelized Channelized Permanent Schannel Channel M. Ephemeral Channel |
| Other: lotes: (Include any inputs into the system i.e. tile drainage | |
| - gullies rixled by integer | Ground Water Indicators |
| NT (°C): 20 AT(°C): 18 ° | Watercrees C Bank Seepage C |
| ili: 7, 05 Cond (1/s/cm): 0,53 | Iron Staining 🔲 None 🕍 |
| | Bubbling C Other C |
| Water Clarity: Clear 🖾 Turbid 🗀 | [|
| ite Length (m): 50 M | tream Mosphology Bank Stability: |
| ,,,, | Stightly Moderately by and to |
| Channel Dimensions | unstable unstable Chistable |
| Mean Bankfull Width Width (m): 3 | Left Bank 🖾 💢 🔟 🖽 |
| dean Wetted O. 15 Mean Bankful Depth O, | . 25 Right Sank II M II II |
| flow Description: fast flowing, flo | owing just bolow bankfull |
| lotes: | |
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| AECOM | | | | | | | | Page 2 of 4 | |
|--|-----------------|--------------|--------|------------------------|------------------|-----------------------|--------------|------------------------|------|
| | | | | Stream Morph | ology (contil | nued) | · | - | |
| Substrate (< = >) Bo - Bowker Co - Cobble Gr - Grevel Se - Sand Si - Sill Cl - Clay MX-Mack DT-Detritus Other | Descriptio | n 60 > 61 | | | Notes: | | Riffle | Cal Structure (% | Fiat |
| | | | | Ha | bitat | | | | |
| Instream Cover (| %) <u>50</u> _ | | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | 30 | £ 10 | ೩೦ | 4v | | | | " " ' | |
| Canopy Cover (% | | | 9=x | Турев of Cov | er (% cover) | | | Mar | |
| 100-90% | یلادل | 30-1% | 973 | Treas | 90 | Shrabs | | Man-made structures | |
| 90-60% 60-30% | Li | 0% | | Grasses | | Herbaceo | u8 | Other | |
| Notes: | | | | | | | | | |
| Obstru | ctions to Fi | sh Passage | | <u> </u> | Draine | ige Featur | es within S | tudy Area | |
| No Obstructions Natural | 为 | Man-Made | | Observations | of Land Top | ography v | vithin 120 r | n buffer area: | |
| Description: | | | | | | and the second second | | | |
| Terrestrial featur | | | (No. | <u> </u> | | | | | |

| AECOM TWW 27/11 BLW -T5-N Page 3 of 4 r General Comments Regarding the Study Area: |
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| -bish observed in culvert |
| 2 m box & Culvert |

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| | General In | Fleid Crew formation | $: \mathcal{M}_{\mathcal{O}}$ | 1/4-[) | |
| Study Area: Jericho Goshen (Blue | water-Land Parcel# | | Turbine # | Piller | <u> 15-501</u> |
| Date: 3014 Z9, 2011 Start | | | End Time: | | |
| Weether Conditions: | | ield Notes Sv: | | | |
| you city ups | inc | H | \mathcal{L} | } | |
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| East of London 10 | Site Lo | | rc4 | | |
| 6" @ 24 (2) ("Quezz)(2 17 | , | C4 (104111161 | () | | |
| 0115.9667 | UTM Co-d | ordinates | | Ο. | |
| Easting: 0459667 North | British 1971 (Supplies | 102 30m | Description | n: (C) | <u> </u> |
| | thing: | | Description | <u>n:</u> | |
| Easting: North | thing: | : | Description | n: | |
| Easting: Nort | thing: | | Description | n: | |
| Surrounding Landuse/Pollution S | iources | | Type of W | atercourse | |
| Residential | | Intermittent | | Channelized | |
| Agriculture Wetland ! Forest Livestock ! | = | Permanent Ephemeral | | latural Chann | iei - C |
| Other: | | | | | |
| votes: (include any inputs into the system i.e | | | | | |
| Channelized Amough | 1 (2) (12.7 K) (2) 1. 1 (2) (12.7 K) (2) 1. | ``\ | | | |
| No input's sock |) (CAS) | 1 | | | |
| venduced or | C12 (1/368 | | | | |
| in-Situ Waler Quality | | G | round Wal | er Indicators | |
| WT (°C): AT(°C): 2C | <u> </u> | Watercress | 3 🗀 | Bank Seepag | 30 [] |
| oH: Cond (s/cm): | 1, | Iron Staini | ng ILI | None |) <u>v</u> () |
| | rbid 🖂 | Bubbling | [2] | Other | 1 3 |
| | | | | S P 5 | |
| Notes: \$ BW 15.00 | orth Sher | 64 (Y) 5.4 | ્દર્ય ધ | 9944 C | 1 |
| and monoing | abservo | J. | | | |
| -15500 | Stream Ma | rphology | • • • • | | |
| Site Length (m): \sim 50 $^{\circ}$ | E | Bank Stability: | | | |
| | | Stable: | Slightly | Moderately | Unstable |
| Channel Dimensions | | λ. | unstable Àá | unstable | |
| Viean Wetted | Vidth Q.5 | Left Bank | A | Ħ | Lī |
| | epth ~0.30 E | Right Bank | 긔 | | C I |
| Flow Description: | | hdd 1810 | d a | | |
| Medium A | OW , SIIG | 2410 | 000 | | |
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| Notes: (Onne la la la | e anderson of the second of | Level at 1 | 1 . | as 23 | ch. 5 |
| brogger prick | 3e | $\ \ _{W^{-}} \otimes \mathcal{A}_{\mathcal{C}}$ | 1 5 M | PELLE | Dec. |
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| | | · · · · · · · · · · · · · · · · · · · | | tream Morph | ology (contin | ued): | |
| Substrate (< = > 80 - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Cl - Clay MK-Muck DT-Detritus Other | Descripțion | * > (o | | | Notes: | Morphological Structure (%) Pool Riffle Run Flat 10 10 40 40 | |
| | , , | $\overline{}$ | | Не | bitat | | |
| Instream Cover | <u>(%)</u> | <u></u> | | | | | |
| None | Woody Debrie | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: | |
| | 10 | | 40 | 10 | | | |
| Canopy Cover (* 100-80% 90-60% | % closed cov | /er): 30-1% 0% | [] | Types of Cov- | | Shrubs Man-made structures Other | |
| 60-30% | | 0.70 | L | 0103303 | ···- 1 () | HOLOGOGO H | |
| Notes: Riparian buffere conopy cover (Hees) | | | | | | | |
| | | | | an office (| | | |
| | uctions to Fi | ah Passage | · · · · · · · · · · · · · · · · · · · | a ope (| | (\ (C C C C C C C C C C C C C C C C C | |
| | < / | | 11 | | Draine | ige Features within Study Area rography within 120 m buffer area: | |
| No Obstructions | < / | ah Passage | · · · · · · · · · · · · · · · · · · · | | Draine of Land Top | rige Features within Study Area rography within 120 m buffer area: Fig. 100-12 Phy 100-1010 Tores | |
| No Obstructions Natural | < / | ah Passage | · · · · · · · · · · · · · · · · · · · | | Draine of Land Top | ige Features within Study Area rography within 120 m buffer area: | |

| AECOM | July | 29/11 | Page 3 of 4 | |
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| . | Pho | to log | | |
| Picture# | Description | Picture# | Description | |
| 10 | Occount south | | | |
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|-------------------|---------|--|-----------|----------------|---|
| | | Watercours | e Sketch | | • |
| Study Area: | Jericho | Goshen Bluewater Land Parcel# | Turbi: | ne# <u>BLW</u> | -7 <u>5.50uth</u> |
| 6 | 1 | min / | / / / 1 | N | LEGEND Still depth (cm) Por width Refg The Secretary Fine Secretary Fine Secretary |
| | | 00000000000000000000000000000000000000 | Sy Crop & | Fores. | aDood: Cobble IBonder *** Details C7 Code1 SVIFV Submergiffical Veg EV Emergen W Watercross Fallow String //IIII Emed (Isak) COM Riprop / Other Stablication Classican Log/Tree *** Dom//Aud *** Peparlan Tree Image: Comparisor Undercus Hank |
| Hosizontal View o | | 10011 | - iice | 10m 0 b | acle |

| AECOM | Page 1 of 4 |
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| | Fleid Crew: ('S, AO |
| | d Information |
| Study Area: Jericho Goshen Quewater Land Parcel | · · · · · · · · · · · · · · · · · · |
| Date: Two 29/11 Start time: 1911 | End Time: |
| Weather Conditions: | Field Notes By: |
| Rain, 18°C | |
| | Location |
| Contennial + DIVISION Kd. | |
| DTM C | Co-ord nates |
| Easting: 04 6 8 5 25 Northing: 421 7 | 927 Description: Stream Rec(-10 |
| Easting: Northing: | _ |
| Easting: Northing: | |
| Easting: Northing: | Description: |
| Surrounding Landuae/Poliution Sources | Type of Watercourse |
| Residential ☐ Meadow ☐ Agriculture ⊠ Wetland ☐ | Intermittent 🗀 Channelized 🕍 Permanent 🖾 Natural Channel 🗀 |
| Forest 🗖 Livestock 🗒 | Ephemeral 🛄 |
| Other: | |
| lotes: (include any inputs into the system i.e. tile drainage, see | epages, overland flow) |
| - road drainage. | |
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| In-Silo Water Quality | Ground Water Indicators |
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| H: 7,05 Cond (ms/cm): 0,47 | Iron Staining None Bubbling Other |
| Water Clarity: Clear III Turbid III | July Ville |
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| Substrate (<=>) 8e - Boulder Co - Cobbte Gr - Gravel Sa - Sand Si - Sti Cl - Clay MK-Muck DT-Detritus Other | | (K) P | nt < | · | Notes: | | rarphologic Riffie | al Strectur Run / 40 | \dashv | Flat | |
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| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation | Undercut Bank | | | Other: | ٠ | | |
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| AECOM July 69/11 | BLW-TV -North Page 3 of 4 |
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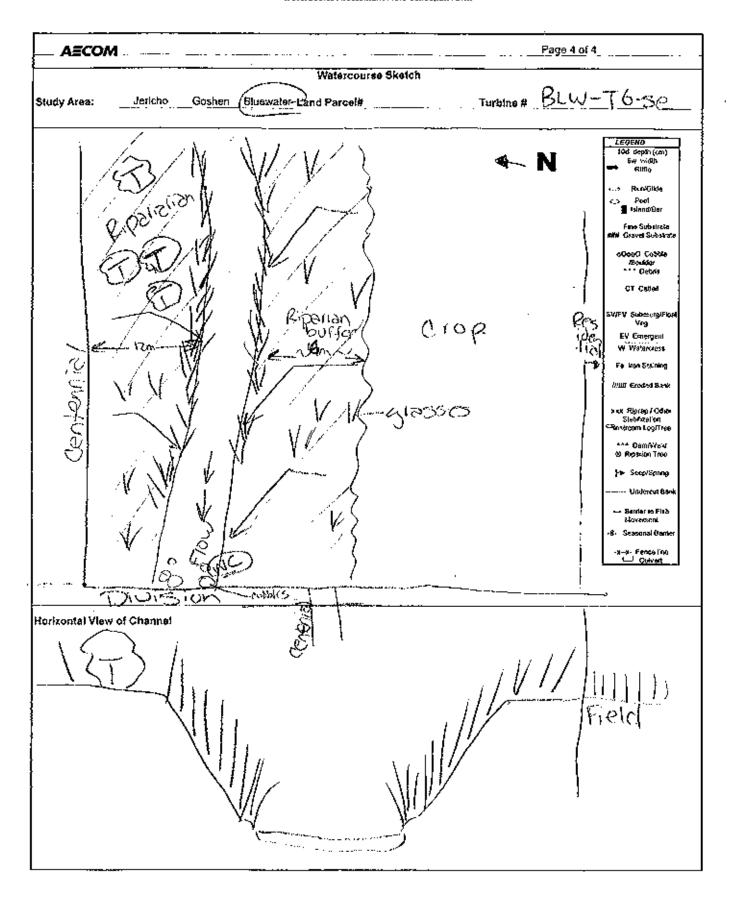
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| Study Area: Jericho Goshen Ghuzvalet-Eand Parcelle Turbine # BLW Telester: Wy 29, 201 Start time: 10.10 End Time: Anather Conditions: Field Notes By: Field Notes By: Field Notes By: Field Notes By: Field Notes By: Streaming: Northing: Description: PCDU Easting: Northing: PCDU Easting: Northing: PCDU Easting: Northing: PCDU Easting: Northing: PCDU Easting: Northing: PCDU Easting: Northing: PCDU Eas | AECOM | | | | | Page 1 of 4 | |
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| | | | | Stream Morpho | ology (contin | nued) | | | | |
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| Instream Cover (| <u>%) </u> | <u> </u> | | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other | | |
| | | : | 10 | 10 | | | | • | • | |
| Canopy Cover (% 100-90% 90-60% | closed cov | er): 39-1% 0% | Ω. Σά. | Types of Cove Trees Grasses | er (% cover) | Shruba Herbaceo | | Mar stro | n-made ictures Other | |
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| Obstru | ctions to Fi | sh Passage | • | | Dratna | ige Featur | s within S | tudy An | êa | |
| No Obstructions Natural Description: | DX L | Man-Made | Ħ | Observations | of Land Top | | 11666 120 6 3-1- TO 714 S/U | | | Phy 50 |
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| AECOM | July 29/ | U | Page 3 of 4 |
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| AECOM | | Field Crev | n: (1) | 3, AD | |
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| Study Area:Jericho Gost | hen Bluewater and Parcet | # | Turbine # | BLW- | T7 - North |
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| | | | Description | | |
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| | s/cm): | Iron Stain | · · | None | |
| pH: Cond (| archy. | Bubbling | | Other | Ē |
| Water Clarity: Clear | Turbid 🗀 | 1 | | | |
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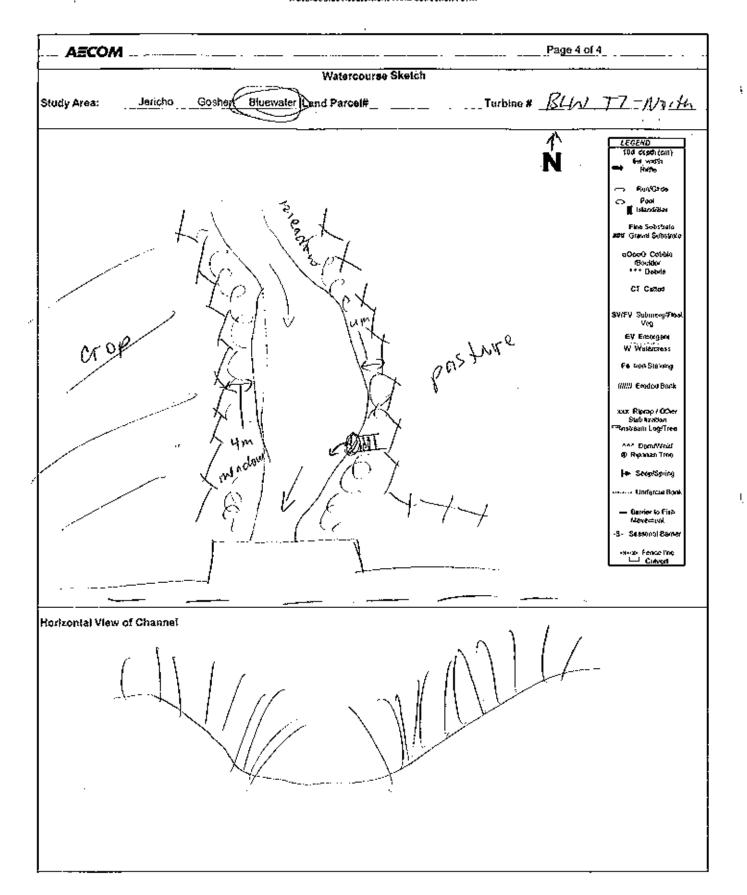
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| None | Woody Dabris | Boulders | Cobbia | Aquatic Vegetation* | Undercut Bank | | | Othe | r: · | • • • | |
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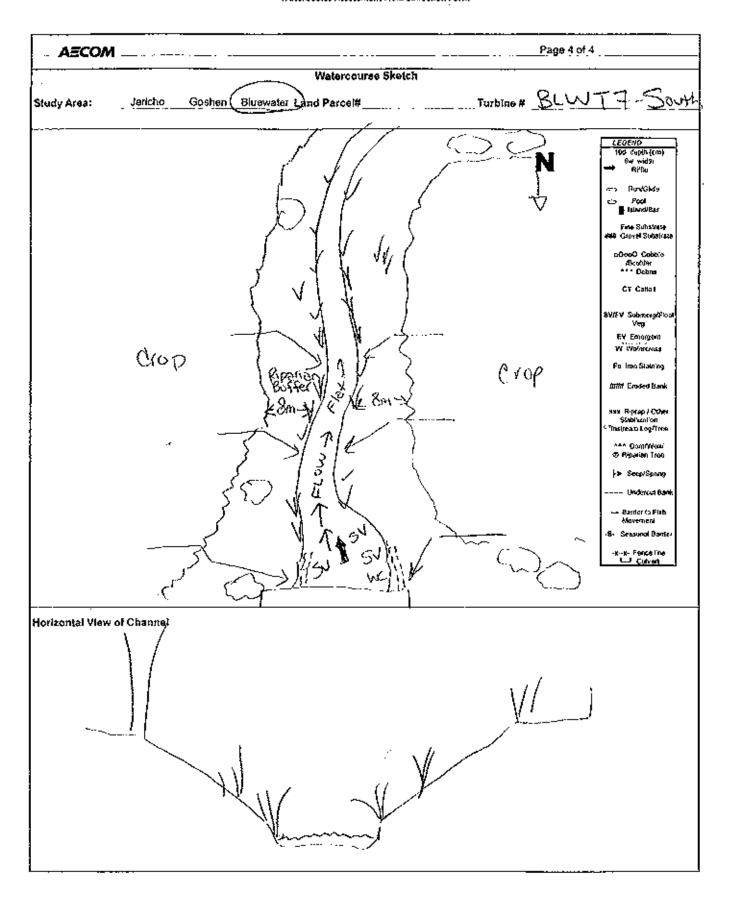
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| Starting: Description: Field Notes By: F | AECOM | | | | | | | | Page 1 of 4 | |
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| Study Area: Joricho Goshen (Bunevalet Lange Parcells) Turbine # BLW-TT-X Jean John 29, 7011 Start time: 3 + End Time: Field Notes By: Field Notes By: Site Location Centennial (OBC), 685+ of Hanneh Line Easting: Northing: Description: RORG Easting: Northing: Description: Poscription: Rord Easting: Northing: Description: Poscription: Rord Easting: Northing: Description: Poscription: Rord Easting: Northing: Description: Rord Easting: Northing: Description: Rord Easting: Northing: Description: Rord Easting: Northing: Description: Rord Streamflential Grand Meadow II Description: Type of Watercourse Residential Grand Meadow II Permanent Grand Agriculture Water II Permanent Grand Forest Claretock II Channelized SY Permanent Grand II Natural Channel II Start Colored II Natural Channel II Start Colored II Start Colored II Start Colored II Start Colored II Start Colored II Start Colored II Start Colored II Start Colored II Start Colored II Start Colored II Start | | | | | General | Information | Fleld Crew | <u>r:</u> | | |
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| Easting: Northing: Description: ROCC Easting: Northing: Description: Description: Rocc Easting: Northing: Description: | | | | | UTM Co | o-ordinates | | | | |
| Easting: Northing: Description: Easting: Northing: Description: Surrounding LanduserPollution Sources Residential Meadow II Permanent Perest Intermittent Channelized Agriculture Permanent Intermittent Channelized Permanent Ephemeral Natural Channel III Permanent Ephemeral Intermittent Channelized Other: In-Situ Water Quality Permanent Ephemeral Intermittent Channelized Other: In-Situ Water Quality Ground Water Indicators Wit (*C): A. 5 AT(*C): B. Watercress Bank Saepaga Intermittent Channelized Other: In-Situ Water Quality Ground Water Indicators Water Creaty: Clear D. AT(*C): B. Watercress Bank Saepaga Intermittent Channelized Other Intermittent Channel Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Intermittent Channelized Other Channelize | Fasting: | 4691 | 2 2 | Northinn: | | | 15m | Dancelnti | m Pas | c l |
| Easting: Northing: Description: Easting: Northing: Dascription: Surrounding LanduserPollution Sources Residential Meadow II Permanent Permanent Intermittent II Channelized Agriculture Permanent II Natural Channel III Permanent II Natural Channel III Permanent II Natural Channel III Permanent II Natural Channel III Permanent II Natural Channel III Permanent III Pe | | 10 11 | | | | | | - | | |
| Easting: Northing: Type of Watercourse Surrounding Landuse/Pollution Sources Residential Agriculture Waterd Waterd Water Internitions: Natural Channel Waterd Directions: Natural Channel Water Internitions: Natural Channel Water Indicators In-Situ Water Quellity Ground Water Indicators In-Situ Water Quellity Ground Water Indicators WaterCress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Sate of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Type of Watercress Bank Saepaga Dank Sate of Watercress Bank Saepaga Dank Sate of Watercress Bank Saepaga Dank Saepaga Saepaga Dank Saepaga Sae | - · - | | | | | | | | | |
| Surrounding Landuseiffollution Sources Residential Meadow Metand III Meadow Entermittent Channelized Metand III Permanent Ephemeral Livestock III Permanent Ephemeral Matural Channel III Permanent Ephemeral III Natural Channel III Permanent III Natural Channel III Permanent III Per | Fasting | | | Northing | | | | | | |
| Agriculture Forest Livestock Permanent Ephemeral Natural Channel Permanent Permanent Natural Channel Natural Channel Permanent Natural Channel Permanent Natural Channel N | Surro | inding Lat | duse/Pollut | on Source | 8 | | | Type of V | Vatercourse | |
| Forest Livestock Ephemeral | | <u> </u> | *************************************** | ŢŢ | | 1 | | | | :37: |
| In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Indicators Water Cress Water Cress In-Situ Water Indicators Water Cress Water Cress In-Situ Water Indicators Water Cress Water Cress In-Situ Water Indicators In-Situ Water Indicators In-Situ Water Indicators Water Cress In-Situ Water Indicators In-Situ Water Indicators Water Cress In-Situ Water Indicators In-Situ Water Indicators Water Cress In-Situ Water Indicators In-Situ Water Indicators Water Cress In-Situ Water Indicators Water Cress In-Situ Water Indicators In- | - | / [] | | | | I | | | Natural Chann | ei EL |
| In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Quality In-Situ Water Class In-Situ Water Quality In-Situ Water Indicators Water Class Water Class In-Situ Water Quality Water Class In-Situ Water Quality In-Situ Water Class Water Class In-Situ Water Class In-Situ Water Indicators Water Class In-Situ Water Class In-Situ Water Indicators Water Class In-Situ Water Class In-Situ Water Indicators Water Class In-Situ Wa | | - | 3 · · · · · · | | | <u> </u> | | | | |
| WaterCress Bank Seepage | | | | | | | | | | |
| H: 788 Cond (in s/cm): O 47 Iron Statining A None D Bubbling Other U Water Clarity: Clear A Turble D Bubbling Other U Stream Morphology Stream Morphology Bank Stability: Stable Slightly Moderately Unstable un | | In-Situ | Water Quali | ty | | 1 | G | round We | iter Indicators | |
| Water Clarity: Clear A Turble D Notes: WOLE Flow Medium Stream Morphology Bank Stability: Channel Dimensions Mean Bankfull Width N2.0 Left Bank A D D D Mean Bankfull Depth Notes: Wedium Flow Notes: Wolted Mean Bankfull Depth N3.0 Right Bank D D D D D D D D D D D D D D D D D D D | | 1.5 | AT(°C): | 18 | | † | Watercres | . 🔯 | Bank Seepag | ı () |
| Water Clarity: Clear 14 Turbld | 70 | ~~ · | | m); | ЧЪ | | Iron Staini: | ng 🕱 | None | |
| Stream Morphology Bank Stability: Stable Slightly Moderately Unstable uns | | | | . | | | Bubbling | □ | Other | C |
| Stream Morphology Bank Stability: Stable Slightly Moderately Unstable uns | • | | | | | 1 | | ~~ | | |
| Stable Length (m): ~ 150m Channel Dimensions Mean Welted M. 5 Mean Bankfull Width ~ 2.0 Left Bank M. 5 Mean Bankful Depth ~ 0.30 Right Bank D. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Aotes: MS/ | er P | 1000 | mecti | (XX) | | | | | |
| Stable Length (m): ~ 150m Channel Dimensions Mean Welted M. 5 Mean Bankfull Width ~ 2.0 Left Bank | | | | | | | | | | |
| Stable Length (m): ~ 150m Channel Dimensions Mean Welted M. 5 Mean Bankfull Width ~ 2.0 Left Bank Mean Welted Depth (m): Mean Bankful Depth ~ 0.30 Right Bank Medium Plant Medium P | | | | | 6 / | J | | <u> </u> | | |
| Stable Slightly unstable unsta | ille Length (m): | ~ 150 |)m | | Stream | | ltv: | | | |
| Channel Dimensions Mean Welted M. 5 Mean Bankfull Width N2.0 Left Bank M. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 2 | | 1 | | | 1 | • | Statut. | Madaratate | |
| Mean Welled Differen Bankful Depth 20.30 Right Bank DL II II III III III III III III III II | Channel Dimensio | ns | | | | | Stable | | | Unstable |
| Mean Welled Depth Mean Bankful Depth NO.30 Right Bank DL LI DL LI Slow Description: Medium Flow Notes: Road Phele SIE Unclercut Danks | | 1,5 | | ull Width | ~2.0 | Left Bank | Þ¥′ | \mathfrak{M} | | |
| Hedium flow Hotes: Road there are undercut banks | · · · · · · · · · · · · · · · · · · · | 1 | · · · · · | | | 1 | ria. | | | |
| Hedium flow Medium flow Hotes: Road there are undercut banks | | | | ul Depth | ~0.30 | Right Sank | > * | L | 1_1 | L; |
| ® Road there are undercut banks | ····· | 6.1 | _ | | | | | | | |
| ® Road there are undercut banks | Med | ison | flour | | | | | | | |
| Coment bridge F-1 | • , , | | | | | | | | | |
| coment prigge 1=1 | Votes: | Har | des este | S (| don | 1. ks | ۲ | | | |
| cowar prode 1=1 | CO KOGE | 7/1/2 | NE OH | s un | CUCO | L Dav | (C) | | | |
| NI II II | cone | Not k | Du ad | e [= | <u>~</u> _1 | | | | | |

| AECOM | | | | | | Page 2 of 4 | | | |
|--|---|------------|--------------|------------------------|------------------|--|--|--|--|
| Stream Morphology (continued) | | | | | | | | | |
| Substrate (< = >) Bo - Goulder Co - Cobble Gr - Gravel Sa - Sand St - Silt Cl - Clay MK-Muck DT-Detritus Other | Description | , >Co | | | Notes: | Morphological Structure (%) Pool Riffle Run Flat 10 10 80 Pooling under bridge Riffle & bridge by we Fiel through reach | | | |
| | · | ^ | | Ha | bitet | | | | |
| Instream Cover (| <u>%} </u> | 0 | | | | *** | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: | | | |
| | | | 55 | 10 | 5 | | | | |
| Canopy Cover (% | æ | | °, €m = | CI SON | er (% cover) | Man-made | | | |
| 90-60% 60-30% | | 0% | | Grasses | 190 | Herbaceous Other | | | |
| Notes: Ripi | aciso, | buller | MOS | Hy Gra | NO56 S | overhanging Ottonnel | | | |
| Obstru | ctions to Fi | sh Passage | | | Drain | age Features within Study Area | | | |
| No Obstructions Natural Description: | ř | Man-Made | Li | | | pography within 120 m buffer area: | | | |
| Terrestrial featur | | Yes Yes | (No) (No) | | | | | | |

| | nomments Regarding the Study Area: | ter sh | ideks | |
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| Picture # | Description | to log Picture # | Description | |
| 14 | | | | |
| 15 | Overview south Side Closeup South Side. | | | |
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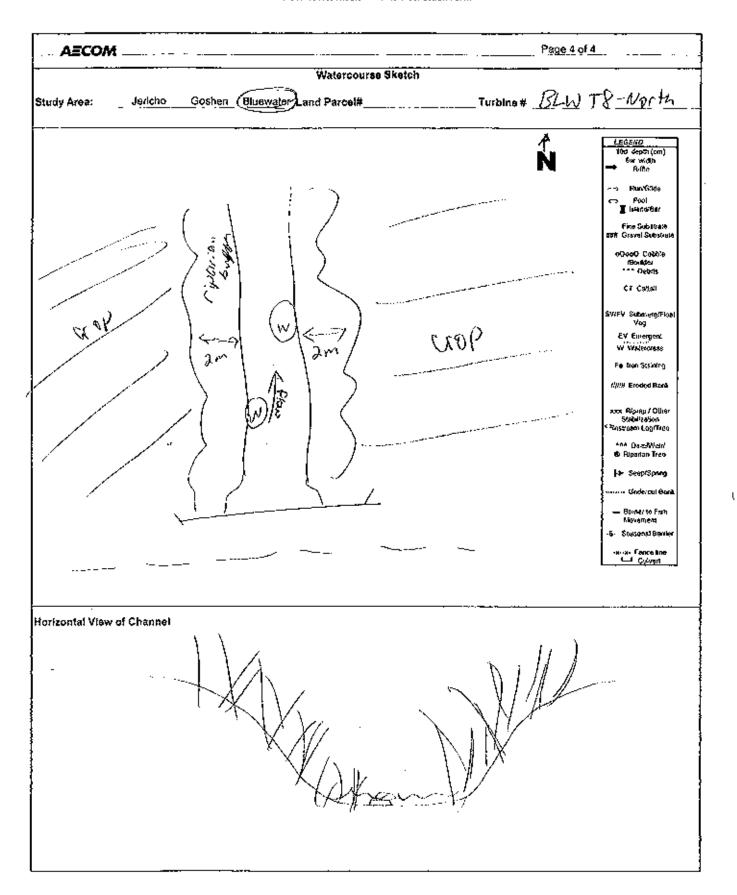


| MOM | Page 1 of 4 Fleid Crew: (A), AO |
|--|-------------------------------------|
| General information | on |
| | Turbine # 14/TP - North |
| 5 way 29/11 Start time: 11' 80 | End Time: |
| Conditions: Field Not | tes By: |
| Over coop | ω |
| Ø11 - 5 45 | |
| ntennial » just tact of Kipp | en |
| UTM Co-ordinates | |
| ng: 466387 Northing: 4816211 | Description: Vocal |
| ng:_ Northing: | Description; |
| ng:Northing: | Description: |
| ng: Northing: | Description: |
| Surrounding Landuse/Pollution Sources | Type of Watercourse |
| dential Meadow II culture Wetland II Forest II Liveslock II | Intermittent |
| plude any inpute into the evelop to the dvalence conseque our | when it should |
| clude any inputs into the system i.e. tile drainage, seepages, ove | - |
| dinings pipe on east side -n | A prono our us ir |
| In-Situ Water Quality | Ground Water Indicators |
| 22.2 AT(°C): 18°C | *Watercress 🖼 Baπk Seepage 🗔 |
| 7,73 Cond (ms/cm): 10,55 | Iron Staining 🗀 None 🗔 |
| | Bubbling 🔲 Other |
| artty: Clear 🔲 Turbid 🕍 | * abundant |
| Stream Morpholog th (m): 60 | |
| | Stable Slightly Moderately Unstable |
| Dimensions ted | unstable unstable |
| ted | |
| ted 0.15 Mean Bankful Depth 0,35 Right Ba | nk \$4 0 5 0 |
| moderate flow, below bank | Gull |
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| AECOM | | | | Page 2 of 4 | | | | | | | | |
|---|-----------------|----------------|--------|------------------------|------------------|---|--------------|------------------------|----------|--|--|--|
| <u> </u> | | | | Stream Morpho | ology (contle | rued) | | | | | | |
| Substrate (< = >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sdt Cl - Clay MK-Muck DT-Detritus Other | Description | | | iy) mk | Notes: | Morphological Structure (%) Pool Riffie Run Flat | | | | | | |
| Habitat | | | | | | | | | | | | |
| Instream Cover (%) 70 | | | | | | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | | | | |
| | | | 25 | 80 ` | / | | | | | | | |
| Canopy Cover (% 100-88% | cłosed cov | 197): 30-1% | 233 | Types of Cov Trees | | Shrubs | | Man-made structures | | | | |
| 80-60% | 딝 | 0% | | | _/ \$ 0 | | | Other | | | | |
| 60-30% Notes: | | | | <u> </u> | 'Spme. | overh | on-ging | providin | 3 C000-1 | | | |
| Obstru | ctions to Fi | sh Passage | | | Drain | age Featur | es within Si | tudy Area | | | | |
| No Obstructions Natural | N. T. | Man-Made | | Observations | of Land To | oography v | vithin 120 n | n buffer area: | | | | |
| Descriptioя: | | | | ~~·· | blat | | | | | | | |
| Terrestrial feature | | | (No) | | | | | · | | | | |
| | | | | | | | | | | | | |

| AECOM | 3 11 7 7 11 | BUNT | 8 - 1075 A Page 3 of 4 | |
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| ther General Co | omments Regarding the Study Area: | | | |
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| | | hoto log | | |
| Picture# | Description | Picture # | Description | \exists |
| 78 | poerale | | | |
| J 79 | | | | |
| 3 80 | drainage pipe heateners-scale | | | |
| 4 81 | 11 | | | |
| 5 p2 | In Stram | | | |
| 6 83 | Culvert | | | _ |
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| AECOM | | | | | | | | Page 1 of 4 | |
|--|-------------------|--------------------------------|-------------------|--------------|---------------|---------------------------------------|--------------------------|------------------------------|----------|
| ASCOM | | | | | | Field Crew | ļ | | |
| | • | | | 1 | Information | | | Λ | |
| Study Area: | Jericho | Goshen (| Bluewater | Land Parcel# | | | Turbine# | RLW- | -78-Sw |
| Date: <u> う</u> い) | 7 8 d | <u> 2011 :</u> | Start tīme: | 1 | | | | | |
| Weather Condillo | | | | | Field Notes | By: | | | |
| ر چ ۱ | in in t | ١,Μ. | | | <i>p</i> | SC. | 14. | | |
| <u> </u> | <u>ce, ce</u> | <u>- 162</u> | | €tte t | ocation | | • | | |
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| ce | UHENI | "BIKC | 29c/' | E924 | - Of | Kipp | en. | | |
| | بانیم | 200 | | UTM Co | ordinates | | | | |
| Easting: | 0406 | 58 d | Northing: | 41814 | a6) | ±5m | Poscriptic | on: 720 | 99. |
| Easting: | | | Northina: | | | | Descriptic | | |
| Easting: | | | Northing: | | | | Description | | |
| Easting: | | | Northing: | | | | Descriptio Descriptio | | · |
| Surr | ounding La | nduse/Polluti | on Source | \$ |] | | | on: Vatercourse | |
| Residential Agriculture Forest | | Meadow Wetłand Livestock | | | F | etermittent Permanent Ephemeral | | Channelized Netural Chann | |
| Other: | | ENVENTOUR | _ | | , | -рлепша | | | |
| | In-Site | : Water Quali | ty | | <u></u> | G | round Wa | ter indicators | **** |
| WT (°C): | · | AT(°C): | T\$2 | | 10ve | Watercress | · \\\ | Bank Seepeg | le [[] |
| оН: | | Cond (s/c | ml: | | | Iron Stainit | C | None | |
| | | · | | | ĺ | Bubbling | Ë | Other | |
| Water Clarity: | Clear | > 4 | Turbid | | | | | | |
| Notes: Water quality on Blw-T8 north sheet. water slightly cloudy. | | | | | | | | | |
| | 100 | | | Stream f | lorphology | | | | |
| Sile Length (m): | 150 | TY' \ | | | Bank Stabil | illy: | | | |
| | | | | | ļ | Stable | Slightly | Moderately | Unstable |
| Channel Dimens | lons | 34 5 | | | | | unstable | unstable | |
| flean Wetted Vidth (m): | $\sim 1.5 m$ | Mean Banki (m): | an wiath | ~2.5 | Left Sank | [] | 154 | | \Box |
| Mean Welled Depth (m): | | | | 1035 | Right Bank | × | П | نيا | D) |
| Flow Description | | ne chom | , [‡] Uo | od 40 | <i>い</i> なとつ. | // | | | •• |
| Notes: CE | avev _t | brich | 5e 1 | <u></u> | | | | | |
| be | WK E | 1000 | 916 | 60° | | | | | |

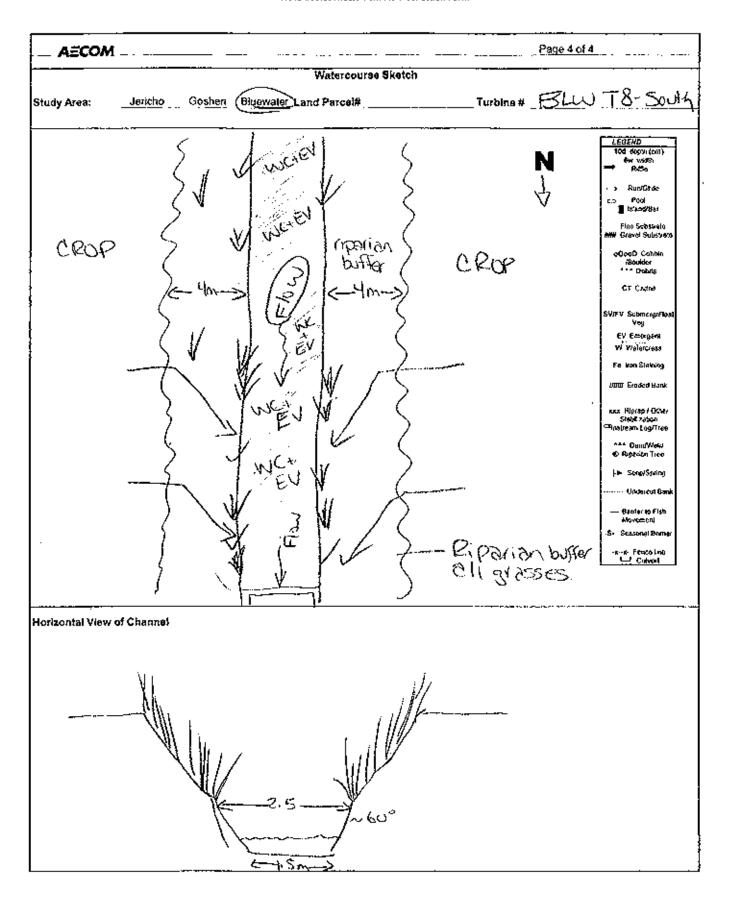
| AECOM | | | | | | | | Page 2 of 4 | | | |
|--|------------------------|------------|---------------------|------------------------|------------------|----------------|----------------|------------------|---------|--------|--|
| Stream Morphology (continued) | | | | | | | | | | | |
| Substrate (< ≈ >) 80 - Bowder Co - Cobble Gr - Gravel Sa - Sand SI - SIII CI - Clay MK-Muck DT-Defritus Other | Notes: | | orphologi Riffie | cal Structure Run | /OC | | | | | | |
| C | | | | | | | | | | | |
| Instream Cover (| %) OF | | | | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Qiner: | | | | | |
| | | | 5 | 90 | | | | | | | |
| Canopy Cover (% | closed cov | | ps/ | Types of Cov | | Shrabs | | Man-ma | | | |
| 90-60% 60-30% | | 0% | | Grasses | <u> </u> | Herbaceou | IS | structur Oth | | | |
| Notes: Emelge Canap | ч <i>со</i> , U) Ue | rec t | siclins Youd | ,02 50, 20.1° | 0 70 Uls & | 6 to gualar | 81.52 1 600 | er, but SPS (| r outsi | inging | |
| Obatru | ctions to Fi | sh Paseage | | | Draina | ige Feature | e within S | tudy Area | | | |
| No Obstructions Natural | X. | Man-Made | ĹĹ | Observations | of Land Top | ography w | ithin 120 i | n buffer area | a: | | |
| Description: | | | | FIGH | 291W | land | 00 | eithe | r side | | |
| Terrestriai featur | es Present | Yes | (6) | | | | | | | | |
| Terrestrial Recon Fo | ım Filled out | Yes | (m) | | | | | | | | |

Page 3 of 4

AECOM T Why 2.7///
Other General Comments Regarding the Study Area:

Almost entire reach has instream emergent meg

| Picture# | Descript | ton Pro | hoto log Description | | | | | |
|-------------|---------------------------------------|---------|------------------------|-------------|--|--|--|--|
| l (| ovarview side | South | ricture# | Description | | | | |
| 17 | aloseup side | South | | · · · | | | | |
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| AECOM | | <u> </u> | | | Page 1 of 4 | , | |
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| | · | | Fleid Crey | <u>1 [B</u> | $A\Omega^{-1}$ | | |
| 2.3. | | information | | _ / | | | |
| Study Area: Jericho Goshen Bluewate | and arcel# | | | | Bin | - 14- <i>E</i> | c) |
| Date: 1014 29, 2011 Start time | <u>a: 11 0</u> 2 | <u> </u> | | End Time | <u>-</u> | | |
| Weather Conditions: | | Field Notes | · . | _ | | | |
| Cain in A.M. | | | A. | Del. | -}. | | |
| | Site L | ocation | | | | | |
| Hensall Rd, n | 0144 | OF TI | 1e 2 | d. | | | |
| | | _ | | | | | |
| | | -ordinates | | | <u> </u> | - | |
| Easting: OU167879 Northing | : 48H | 899 | 25m | Descriptio | m: (2c | ્ટવ | |
| | | | | | | | _ |
| Easting: Northing | | | | Descriptio | | | |
| Easting: Northing | E | | | Descriptio | | | - |
| Surrounding Landuse/Pollution Source | :aB | 1 | | | atercourse | | |
| Residential 💹 Meadow 🔲 | | | termittent | | Channellzed | | |
| Agriculture 🔼 Welland 📙 Forest 🗒 Livestock | | _ | ermanent ohemeral | | Natural Chan | nel 🔼 | |
| Other: | | | prioritoral | - - | | | _ |
| Notes: (Include any inputs into the system i.e. tile | drainage, seep | ages, overlar | rd flow) | | \sim | | _ |
| None observed by | 50) r | d, exa | ept | ous. | ひつつて | PIPE | |
| - ontering channel und | iej brid | 96 Or | r 30l |)th 51 | 96. C | 17.50/C | Ò |
| hockode. | | | | | | | |
| In-Situ Water Quality | | | G | round Wal | ter Indicators | | |
| WT (°C): 23,3 AT(°C): 18 | | l ' | Watercres | s 🔯 | Bank Seepa | ge 🗀 | |
| pH: 7.05 Cond (Preform): C | 5. 42 |] | iron Staini | ոց [၂] | None | 2-1 | |
| | |] : | Bubbling | ü | Other | 37 | |
| Water Clarity: Clear L Turbid | | Ļ | | , . | · - - | | |
| Notes: WC On both b | 9UKS | byro | 2 <i>9</i> .0 | (timu) | (b,+) | | |
| · | | | | | | | |
| | | | | | | | |
| - 150m | Stream N | orphology | | | | • | |
| Site Length (m): $\sim 150\%$ | | Bank Stabili | ty: | | | | |
| A | | | Stable | Slightly | Moderately | Unstable | |
| Channel Dimensions Viean Welled Mean Bankfull Width | | | | unstable | unstable | | |
| Width (m): (m): | D.O | Left Bank | ×. | | | | |
| Mean Welled 0 55 Mean Bankful Depth | NSW | Right Bank |)Z (| L | | | |
| Depth (m): (m): | (A) 69.97 | - significant | <i></i> | | | | |
| Flow Description: Flow 510m | ralth— / | 016 | deal | ് നാപ്പ | e Cla | a dire | ٦. |
| 000 0100 | 2 chick | | | 4-1 1 7 11 1 | 0 1100 | かいい ひ | CI : |
| | Company of the second | | | | | | |
| Notes: Cement Bridge Bank Slopes | 1 | | | | | | |
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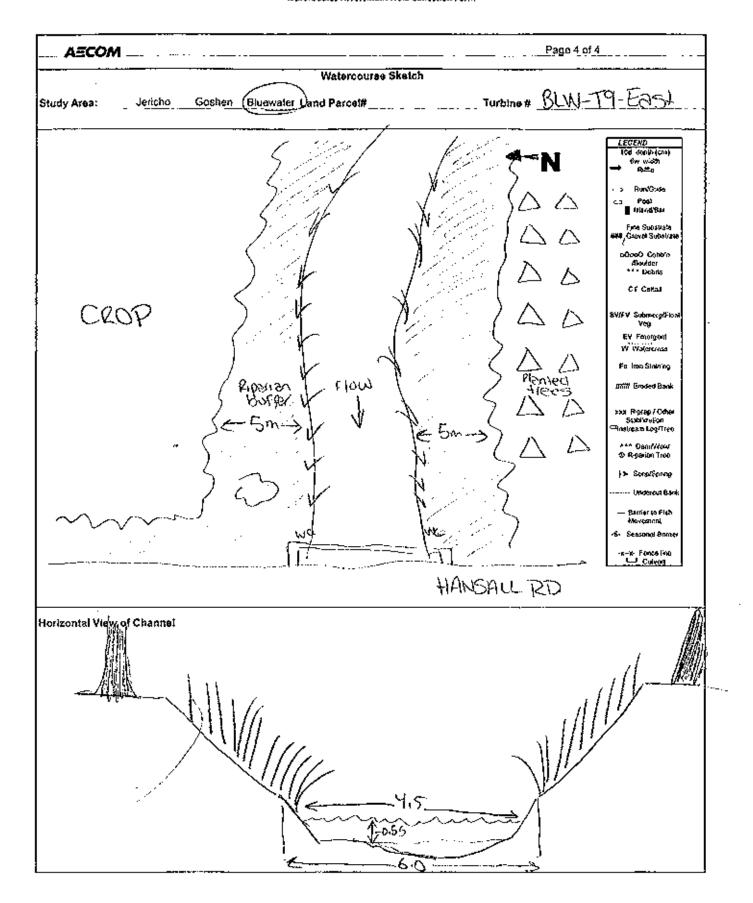
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Project (white an injury)

| AECOM | | | | | | | | Page 2 of | 4 | | |
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| Stroom Marnhology (continued) | | | | | | | | | | | |
| Substrate {< = > 80 - Boxder Co - Cobble Gr - Gravel Sa - Sand Si - Silt GI - Clay MK-Muck DT-Detritus Other | Descriptio | 9 > Y | | | Morphological Structure (%) Pool Riffle Run Flat Notes: | | | | | | |
| Habitat | | | | | | | | | | | |
| Instream Cover | (%) | | | | | | | | | | |
| None | Woody Debris | Soulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | | | |
| | | | 5 | 10 | | | | | | | |
| Canopy Cover (1 100-96% 90-60% | | /er}: 30-1% 0% | П Ж | Types of Cov Trees Grasses | 2 | Shrubs | | | ade Ires her | | |
| 80-30% Notes: (2) 073 | LI Man Ho Ch | shvel polite | y m | 5714 | 3(988 | es = | Ove | hang | 1,72 | | |
| Obstr | uctions to Fi | sh Passege | | | Drein | age Featur | es within S | Study Area | | | |
| No Obstructions Natural Description: | | Man-Made | Ĺ.i | Observations | of Land Top | | | m buffer an | ea: | | |
| Terrestrial featu Terrestrial Recon F | | | 300 No | | | | | , | | | |

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|----------|---|----------|--------|----------|
| , (| omments Regarding the Study Area: Residential property (Unionel Minnows observe | | se)win | 100m of |
| | Pho | to log | | |
| Picture# | east side overview | Picture# | Desci | iption |
| 19 | ezst-side closeup | | | |
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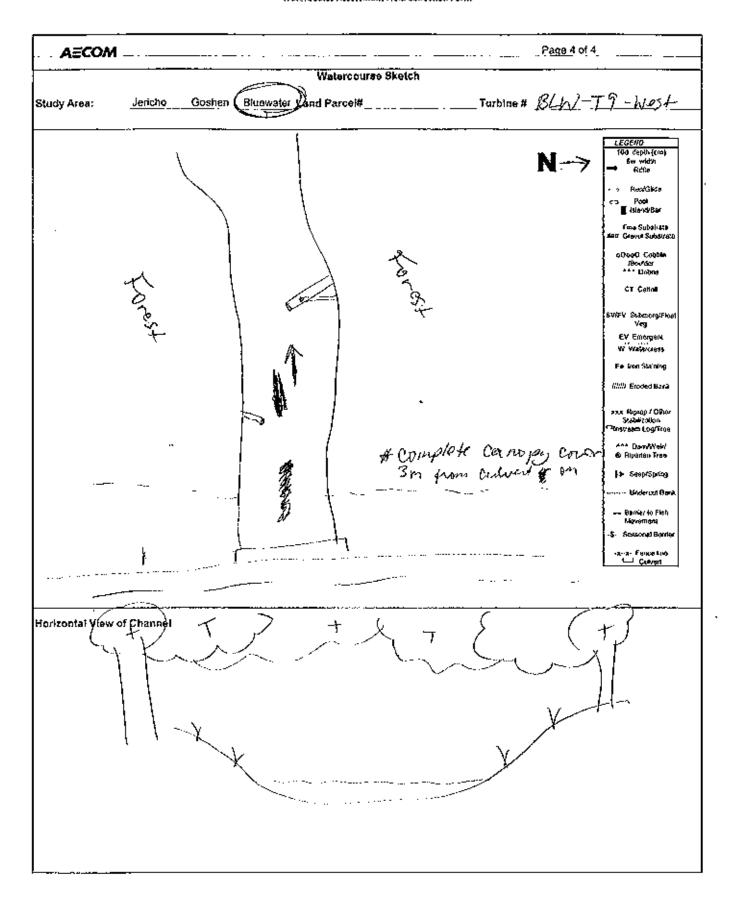
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| AECOM | Page 1 of 4 |
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| | Fleid Crew; OS, AD |
| Indiaha Cashaa (T | General Information |
| Study Area: Jericho Goshen Bluewaler) | |
| 1 1 2 1 1 | |
| Weather Conditions: | Field Notes By: |
| 0 vecast | |
| | Site Location |
| Hensall Rd - north up T | Tile Ral. |
| | UTM Co-ordinates |
| Easting: 0467865 Northing: _ | 4817883 Description: West Culvert |
| Easting: Northing: | Description: |
| Easting: Northing: | |
| Fasting: Northing: | Description |
| Surrounding Landuse/Pollution Sources | Type of Watercourse |
| Residential | Intermittent |
| Other: Notes: (Include any Inputs into the system i.e. tile dra | |
| The inputs noted In-Situ Water Quality | Ground Water Indicators |
| MT (°C): AT(°C): | Watercress IXI Bank Seepage LI |
| | Iron Staining 🔲 None |
| oH: | Bubbling [1] Other 11 |
| Water Clarity: Clear [_] Turbid | 24 |
| Notes: W/g completed on | east side. |
| | Stream Morphology |
| Site Length (m): 50 j~i | Bank Stability: |
| | Stable Slightly Moderately Unstable |
| Channel Dimensions Wean Wetled // Mean Bankfull Width | CHRISTON UNSTRONG |
| Width (m): 4 (m): | Left Bank 🕅 🗆 🗆 |
| Nean Wetted Na Mean Bankful Depth Depth (m): | n/c Right Bank 🕱 [.] 🗆 🗆 |
| Flow Description: | |
| > V.V. Shw flow | tould take a depth reacting of Dis |
| Notes: Glad Lottelerains was 14 wi | which it I m out from 5 home |
| - observations made poom | culvers |
| - 0000 Nounday D. Marcon Lyann | Δε |
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| | | | <u> </u> | Stream Morpho | leav (contin | nued) | | <u></u> | • | ···· |
| Subatrate (< = >) Bo - Boulder | Description | n | • | , | | | lorphologic Riftie | al Structure (Run | %) Flat | |
| Co - Cobble Gr - Gravel Se - Sand Si - Sill | | | | | Blade at | | | - | 100 | |
| CI - Clay MK-Muck DT-Delritus Other | Sand | > mm(| k> g | ₹ | Notes: | | | | | |
| | | <u> </u> | | На | bitat | | | • | • | |
| instream Cover (| %) | | 5 % | · · · · · · · · · · · · · · · · · · · | i | I | | | | \neg |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | | |
| / | /vv | | / | | / | | | | | |
| Noth: V | , tuu bìo | 01 k | hard | . so 2 as | . Too O | Carp K | D 0000 | -1 | | |
| Canopy Cover (% | closed cov | rer): | | Types of Cov | er (% cover) | | | | | |
| 100-90% | j≊ 31: | 30-1% | | Trees | 10 | Shrubs | | Man-madi structure | | |
| 98-69% 69-30% | 1.1 1 | 0% |] <u>.</u> | Grasses | | Herbaced | us | Othe | | |
| Notes: Corv | plet. | e ca | nopo | win | | | | | | |
| Obstru | ictions to Fi | sh Passage | | <u> </u> | Drain | age Featur | es within S | tudy Area | ··· | |
| No Obstructions Natural | 123 ^x 113 | Man-Made | П | Observations | of Land To | pography | within 120 r | n buffer area: | : | |
| Description: | | | | | , | | | | | |
| - Fox & | () ₍ , , , , ,) | n sot per | West | | | | | | | |
| | | | | | | | | | | |
| Terrestrial featur | es Present | yes | No ' | | | | | | ••• | |
| Terrestrial Recon Fo | orm Filled out | t Yes | No | | | | | | | |
| | | | | | | | | | | |

| AECOM | 3 4. (1 4 · · · · · | BLW-T9- | Wast Page 3 of 4 | |
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| Other General Co | omments Regarding the Study Area: | | . | |
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| | | Photo log | | <u>. </u> |
| Picture # | Description | Ploture # | Description | |
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| 2 | overview Culvert banks | | | |
| 3 | banks | | | |
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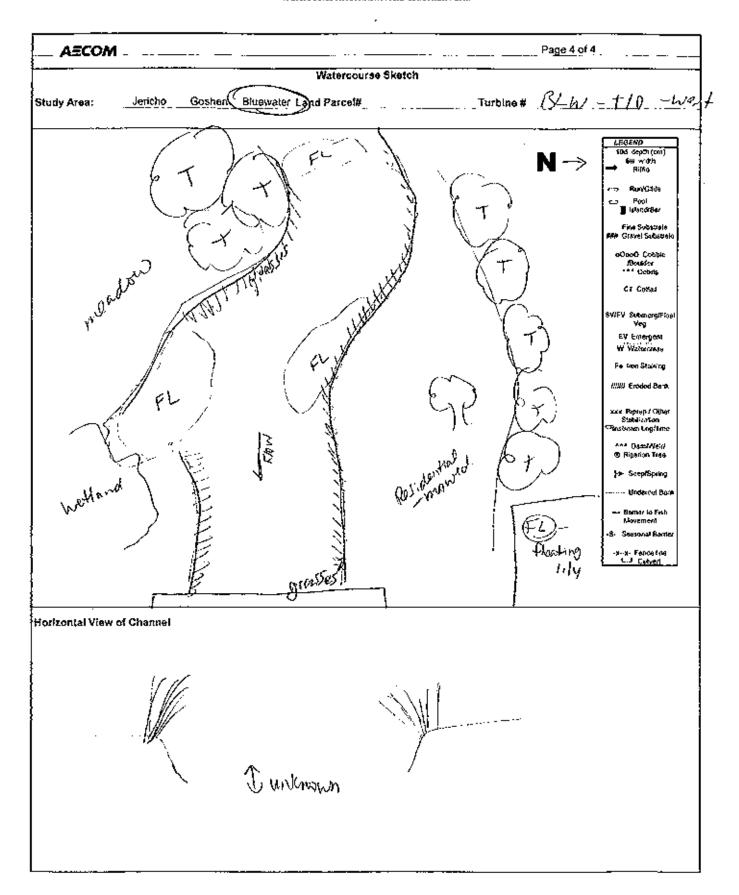
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|--|---|--------------------------------------|-----------|---------------------------|---------------------|
| AECOM | | Field Crew: | CB | A12 | |
| | | Information | , | , - | |
| Study Area: Jericho Gos | hon Sluewaler and Parcel | ŧT | urbine# | BUN IN | - West |
| Date: | Start time: 1/2:30 | <u>., </u> | nd Time: | | |
| Neather Conditions: | | Field Notes By: | | | |
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| | | o-ordinates | | | |
| Easting: 04/08/42 | Northing: | 4818333 6 | escriptio | n: West Side | e a birde |
| Easting: | | | escriptio | | • |
| | | | - | | |
| | Northing: | | | | |
| Easting: Surrounding Landuse/ | Northing: Pollution Sources | <u> </u> | escriptio | n: atercourse | |
| | adow 🗖 | Intermittent | | Channelized | 7 |
| Agriculture 🔲 . We | tland 🛄 | Permanent | = | Vatural Channel | 逶 |
| Forest 🔀 🗤 Livest | ock 🛄 | Ephemeral | | | |
| Other: | | | | | |
| In-Situ Water | Quality | Gre | ound Wat | er Indicator s | |
| MT (°C): 25 AT(°C |): | Watercress | | Bank Seepage | EH. |
| H: 8-01 Cond | (ms/cm): η, 36 | iron Staining | ئا و | None | \$ |
| | | Bubbling | Ц | Other | |
| Water Clarity: Glear E | I Turbid ⊠ | | | | |
| Notes: | | | | | |
| | | | | | |
| | | | | | |
| | Stream | Morphology | | ···· | |
| Site Length (m): /5 ¹⁰ /1-1 | | Bank Stability: | | | |
| • | | | Slightly | Moderately | ıstabl e |
| Channel Dimensions | | | ınstable | unslable | istabl e |
| Mean Welled /5 Mean (m): | Bankfull Width / 6 | Left Bank | | | نا |
| Mean Wetled Ma Mean Depth (m): | Bankful Depth n/a | Right Bank 🖾 | LI. | u | |
| Flow Description: | | 1×10 | 4 1 4 | 2. H. 100 | s Hranit |
| v.18m ₽ | low-hand to o | BOROLINON WHILE | n w | 7 " | Color |
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| M OFFICENSE TO | 10.00 1 coop | | - | • , . | - |
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Project Harrison (888550H)

| AECOM | | | | | | | | Page 2 of 4 | |
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| | | | | Stream Morph | ology (contin | nued) | | | |
| Substrate (< = >) Bo - Boulder |) Descriptio | n | | | | | orphologic Riffle | al Structure Run | (%) Flat |
| Co - Cobble Gr - Gravel Sa - Sand Si - Sill Cl - Clay MK-Muck DT-Detritos Other | ·Co | ha bolun | . Vese | nve | Notes: | | | ₹, | 18-0 |
| | | | | На | bitat | | | | |
| netream Cover (| (%) 40 | | | | | - | | | |
| None | None Woody Boulders Cobbi | | | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | | | | 100 | | | | | |
| Aquatic Vegetat | | | | gent, emergen | | -, | | | |
| Canopy Cover (% | | | | Types of Cov | | | | | |
| 190-90% | | 30-1% | 624. | 77ees | 371 | Shrubs | | Man-mad | |
| 90-60% 60-30% | | 0% | C | | | | | structure Othe | 9* |
| Notes: Vi | ; fHe (| Jamos gy | Cor | el ₁ | | | | | |
| Obstro | ucilana to Fi | ah Passage | | | Draina | ige Featur | es within S | tudy Area | |
| No Obstructions Natural | | Man-Made | | Observations | of Land Top | ography v | viihin 120 n | n buffer area | 1 |
| Description: | | | | | | | | | |
| | | | | L. <u>.</u> | | - | | | |
| Terrestrial featur | res Present |] (<u>e</u> | Νo | | | | | | |
| Terrestrial Recon F | orm Filled out | t Yes | (No) | | | | | | |

| AECON | 2 2 0 0 1 | BLW- | 7/1 W | Page 3 of 4 | |
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| her General C | omments Regarding the Study Area: | | | | |
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| | PI | oto log | | | |
| Picture # | Description | Picture# | | Description | |
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| 2 | gripes gripes | | | | |
| 3 | (previous | | | | |
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Registrate H. 40004639



| 4.50044 | Page 1 of 4 |
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| AECOM | Field Crew: US AO |
| | eral Information |
| Study Area: Jericho Goshen Bluewaler 1 and Par | cel# Turbine# BUNTIO-EASI. |
| Date: 001429, 2011 Start time: 66:35 | End Time: |
| Weather Conditions: Overcast, windy | Field Notes By: |
| Rain in A.M. | 1 A. Dart |
| · · · · · · · · · · · · · · · · · · · | ite Location |
| | |
| Hensall Rd, Noth of - | He id |
| 1(72) | 7 Co-ordinates |
| Easting: 0-168152 Northing: 481 | |
| Easting: O 100 Northing: 51010 | 8327 Com Description: ROAC |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Easting: Northing: Surrounding Landuse/Poliution Sources | Description: |
| h in hand | Type of Watercourse |
| Residential LI Mezdow 231 Apriculture 12 Wetland II | Intermittent |
| Forest Livestock L | Ephemeral 1 |
| Other: | |
| Notes: (include any inputs into the system i.e. tile drainage, s | · ¬• |
| Mone observed from re | 29d |
| • | |
| In-Site Water Quality | Ground Water Indicators |
| In-one Welst Geanty | Ground Water indicators |
| WT (°C): — AT(°C): | Watercress 🖾 Bank Seepage 🚨 |
| pH; Cond (s/cm): | Iron Staining 🗀 None |
| Water Clarity: Clear L.1 Turbid | Bubbling 🗀 Other 🗡 🗀 |
| | |
| Notes: Water Quality on Blu | ution west sheet |
| • | |
| | |
| Street | am Morphology |
| Site Length (m): ~150m | Bank Stability: |
| | Stable Stightly Moderately Unstable |
| Channel Dimensions | unstable unstable |
| Mean Welted へら Mean Bankfull Width 日 | Left Bank 🛱 🖂 🖂 🔟 |
| weller | A Right Benk EX LI II II |
| Mean Welted Mean Sankful Depth Depth (m): | Tright Bank KA LI LI LI |
| Ele Barristellano | |
| Slow Flow Ne | ading east - Flow hard to |
| determine | - |
| Notes: Bridge overpass | |
| mage coapes | |
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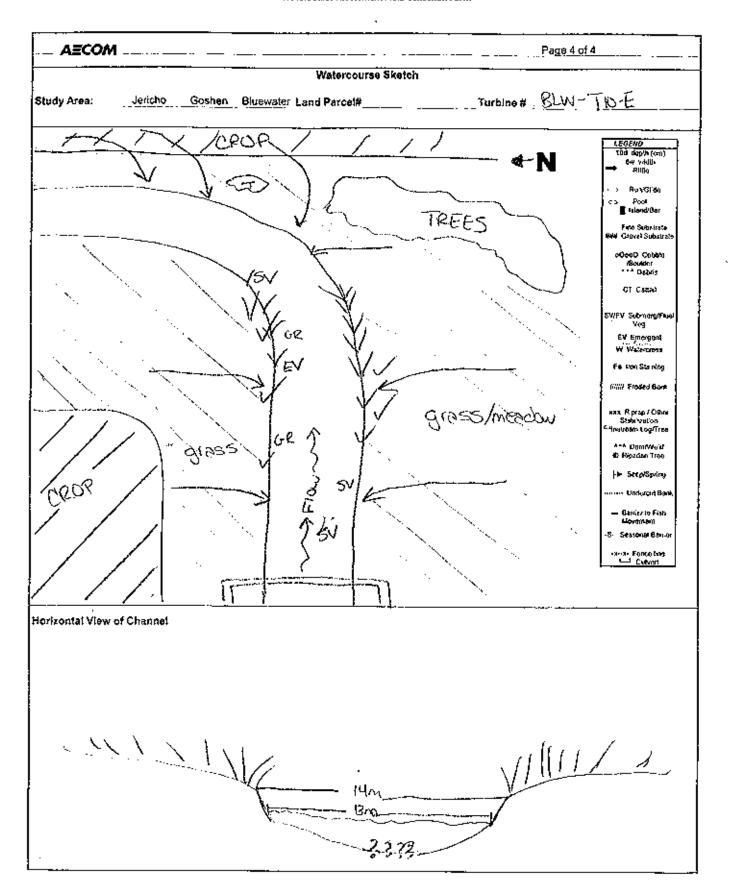
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| | | | | Stream Morph | ology (contin | ned) | | | |
| Substrate (< = >) Bo - Bowder | Description | n | | , | Morphole Pool Riffi | | | al Structure Run | (%) |
| Co - Cobble Gr - Gravel Sa - Sand | 7 | ιΛ . | | . 11 | | | | | 100 |
| SI - SIII CI - Clay MK-Muck | \ bo | 1 PT OW H COWID A | 10 to to | some subidity | Notes: | | | | |
| OT-Oalrilos Olhar | | <i>୦)၁) (୯၁</i> | | | | | | | • |
| | | | | Ha | bitat | | | | |
| nstream Cover (| %} | | | | r-~ | | | | ··· |
| None | None Woody Debris Boulders Cobble | | | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | | 40 | 10 | 30 | | | | | |
| 100.80% 60.30% Notes: 0.50 | Colosed cov | erlities overli: 30-1% |) Li | Trees Grasses | IOO. | Shrubs Herbaceor | | S≪S, Man-mad structure Othe | 9 |
| KY2 | ,990m 20194, | r like | | 500H | ં જેઇહ | つ、 | | • | |
| | | | | 500H | | | as within S | udv Area | |
| | ictions to Fi | | □ | Observations | Draine of Land Top | ige Feature | | • | |

| Waterbodies Assessment Field Collection Form - | | | | | | | | | | |
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| AECOM | 5 Ney 29/11 | | Page 3 of 4 | | | | | | | |
| o Gles | omments Regarding the Study Area: COMPleted in Unis 24 I Blue Helon w-F | es. Pah | n talous observed | | | | | | | |
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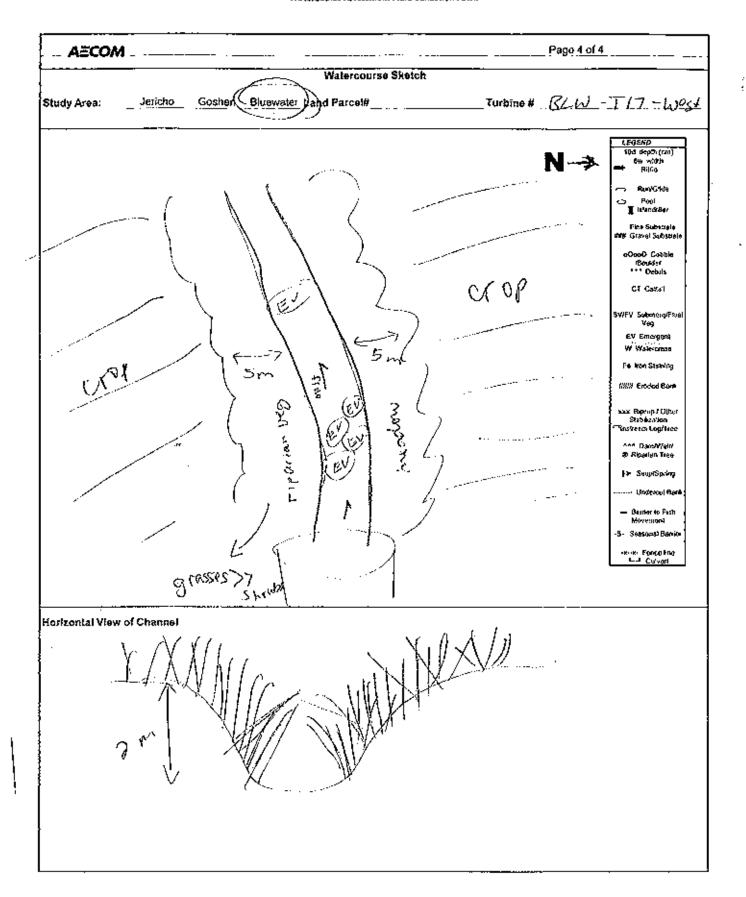
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|-----------------------------|--------------------------------|-------------|---------------|--------------------|----------------|----------------|------------|
| AECOM | | | · F | teld Crew | 6 US | DAD | |
| | | | formation | | _ | , , | |
| Study Area: Jericho | Goshen (Bluewater) | nd Parcel# | | | Turbine # | 18.6h1 - | T 17 - Wes |
| Date: ZWM 991 | (Start time: | 18: 24 | | | End Time | <u> </u> | |
| Weather Conditions: | | ļ | Field Notes E | | a | | |
| Ouldan | 1 00 V | 1 | | | CB- | | |
| Vaci Cas | <u>4,82C</u> | Site Lo | cation | | <u> </u> | | |
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| Œ | ntennial - 2 | just N | nth o | l Fro | n.t st | | |
| | 21 | UTM Co- | | | | | ^ ^ - |
| Easting: DC/69 | 344 Morthing: | 48.2 | 0285 | | Description | on: <u> </u> | Ville ent |
| Easting: | Northing: | | | | Description | on: | |
| Easting: | Northing: | | | | Description | on: | |
| Eastles: | Modhlas | | | | Description | | |
| Surrounding i. | anduse/Pollution Sources | | | | | Vatercourse | |
| Residential 🔛 | Meadow 🔲 | | | ermittent | | Channellze | - *==: |
| Agriculture | Wetfand | | | rmenent hemeral | | Natural Chan | nel LJ |
| Other: | CIVESTOCK | | <u>-</u> } | ******** | _ | | |
| Notes: (Include any Inputs | Into the system i.e. tile drai | педе, свера | ges, overlan | d flow) | | | |
| - d- aireal | pipos on we | u.+ | act a | . 3-4 | s. 14 | 5m 500 | ad. |
| - My survey | Tipes on w. | ۶ 7 × | , 2- KÅ | 0 1 | " 0 | | |
| | | | | | | | |
| In-Si | tu Water Quality | | | G | round Wa | ter Indicators | |
| | AT(°C): 22°C | | v | Vatercres | e [1] | Bank Seeps | ige C1 |
| WT (°C): | Cond (s/cm): | | | | | None | |
| ь <u>н:</u> | Troug (sicm): | | Iron Staining | | | | ā |
| Water Clarity: Clear | ∠ Turbid | じ | | • | _ | | _ |
| Notes: W/g | m East Side | • | | | | | |
| | | | | | | | |
| | | | orphology | | | | |
| Site Length (m): /00 P | ² 4 | ľ | Bank Stabilit | y: | | | |
| | | | | Stable | Slightly | Moderately | Unstable |
| Channel Dimensions | | | | | unstable — | unstable | |
| Mean Wetted Width (m): | Mean Bankfull Width (m): | [7,5] | Left Bank | ≱ I | | | |
| Mean Welled Depth (m): 0, 2 | Mean Bankful Depth (m): | 0,35 | Right Bank | 34 | _ | | (|
| Flow Description: | | | | | | | |
| phod | berate flow | | | | | | |
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| Notes: | | | | | | | |
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Project Mark # 40 (1981)

| AECOM | | | | | | | | Page | 2 of 4 | | |
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| | | | | Stream Morph | ology (conti- | madl | | | | | |
| Substrate (< = >) Bo - Boulder Co - Cobble | Descriptio | n | • | aream morph | ology (conti | | Morphologi Riffia | | ecture Run | | lat . |
| Gr - Gravel Sa - Sand Si - Sill CI - Clay MK-Muck DT-Defrilus Other | 800 | sand > | 667) | 'nk | Notes: | | <u> </u> | <u> </u> | · | 10 | D |
| | | | _ | Ha | bitat | | · · · · · · · · · · · · · · · · · · · | | | | _ |
| nstream Cover (| %) 60 | | | | | | | | | | |
| None | Woody Debris | Boulders | elddoO | Aquatic Vegetation* | Undercut Bank | | , | Othe | er: | | |
| | | | 10 | 50 | | | | | | | |
| *Aquatic Vegelat | - | | | gent, emergen | t etc.} | | | | | | |
| Сапору Сочет (% | | /er): | | Types of Cov | er (% cover) | <u>-</u> | | | | | |
| 100-90% | | 39-1% | | Trees | | Shrubs | | | an-mad ructure | | |
| 90-60% 80-30% | <u> 14</u> | 0% | <u> </u> | Grasses | /ov | Herbáceo | ш <u>в</u> | - | Othe | | |
| Notes: | oso a | verge | _ያ ረ-ላንግሳ | purco | ting Ca | nopy | COU | ² 4 | | | |
| Obstru | ctions to Fi | sh Passage | | | Draine | ge Featur | es within S | tudy A | - | | |
| lo Obstructions latural | M . | Man-Made | ш | Observations | of Land Top | ographyv | vilhin 120: | m buff | er area: | : | |
| Description: — Whet | nat p | erched | | -ble | Ą | | | | | | |
| | es Present | | (No) | | | | | | | | |
| arrestria resident | | • | | | | | | | | | |

| AECOM | | 1/ 131 | W-T17. | -West | Page 3 of 4 | |
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| | mments Regarding the Study Area: | - · - - | | | | - 1 |
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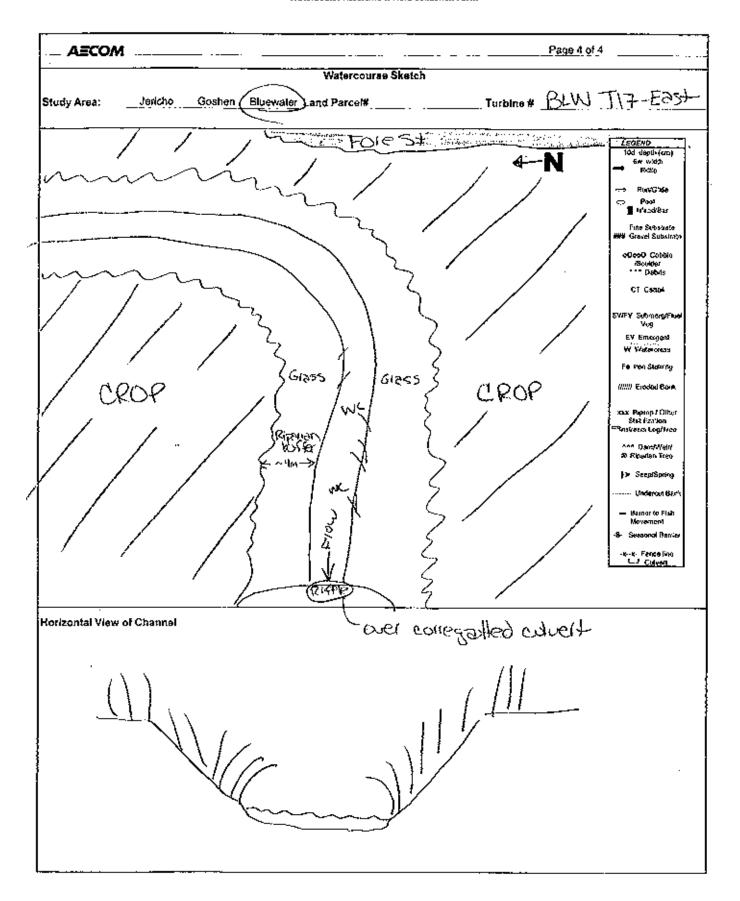
| i AECOM | Page 1 of 4 |
|---|---|
| | Field Crew: (B. A) |
| | Information |
| Study Area: Jericho Goshen Bluewaler Land Parce | _ |
| Date: 101429,2011 Start time: 12100 | |
| Weather Conditions: Over Cast, windy | Field Notes By: |
| Pain in A.M | A. Dest |
| Site | Location |
| Hensell id , north of F | font Rd |
| UTM C | o-ordinates |
| Easting: 0-169355 Northing: 4884 | 282 ±5m Description: 12030 |
| Easting: Northing: | Description: |
| Easting: Northing: | Bescription: |
| Easting: Northing: Surrounding Landuse/Pollution Sources | Description: Type of Watercourse |
| Residential | Intermittent Channelized Permanent Natural Channel Ephemeral |
| Notes: (include any inputs into the system i.e. tile drainage, see | pages, overland flow) |
| None observed from 103 | * * : |
| None observed mon road | |
| | |
| în-Situ Water Quality | Ground Water Indicators |
| WT (°C): 22,4 TAT(°C): 28 | Watercreas 🔀 Bank Sespage 🔝 |
| pH: 7,98 Cond (thetem): 0.50 | Iron Staining II None II |
| I I I I I I I I I I I I I I I I I I I | Bubbling L. Other L. |
| I | Poppuis III |
| Water Clarity: Clear XI Turbid I | - Bubbling L. Cities L. |
| Notes: Methorn flow heading 21928 on rocks, minnou | TOP SOO |
| Notes: Mection flow heading (21920 on locks, minnou | Morphology Morphology |
| Notes: Mection flow heading | s + cuater striders observat |
| Notes: Mechan flow heading (2192e on rocks, minnou Stream Stream | Morphology Bank Stability: Stable Slightly Moderately Linelable |
| Notes: Mechan Flow Heading 21 Se on Locks, Minnou Stream Stream Channel Dimensions | Morphology Bank Stability: Stable Slightly Moderately Unstable unstable unstable |
| Notes: Methorn flew heading Stream Site Length (m): 150m Channel Dimensions Mean Walted Width (m): 0,40 | Morphology Bank Stability: Stable Slightly Moderately Linelable |
| Notes: Mean Bankfull Width | Morphology Bank Stability: Stable Slightly Moderately Unstable unstable unstable |
| Notes: Mean Bankfull Width O.40 Mean Welted Width (m): Mean Bankfull Depth 7, 25 | Morphology Bank Stability: Stable Slightly Moderately Unstable unstable unstable Left Bank A C C C C L |

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|---|-----------------|-------------|----------|------------------------|-----------------------|--|
| | | | | Stream Morph | ology (contin | tuted} |
| Substrate (< = >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Slit Cl - Clay MX-Muck OT-Defritus Other | Descripțio | , Se | | · | Notes: | Morphological Structure (%) Pool Riffle Run Flat \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ |
| | | | | На | bitet | |
| Instream Cover (| %) | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: |
| | | | 10 | 70 | | |
| Canopy Cover (% | | | | Types of Cov | er (% cover) | Olana Man-made |
| 100- <u>90%</u> 90-60% 60-30% | ⊠ □ | 30-1% 0% | u | Trees Grasses | . T. 🔯 | Shrubs structures Herbaceous Other |
| | Can V | | ., | <u> </u> | | |
| 0/2 R: | nnel | wifer | 311 g | 153563 | whi ch | vare over hanging into |
| \$ € \$ | uctions to Fi | | <u> </u> | 153563 | | y are over hanging into |
| Ø. | ections to Fl | | | | Draine of Land Top | ige Features within Study Area ography within 120 m buffer area: |
| Obstructions | ections to Fi | eh Passage | | | Draine of Land Top | ge Features within Study Area |

| AECOM | July 29/11 | | Page 3 of 4 |
|------------------|----------------------------------|-----------|----------------|
| Other General Co | mments Regarding the Study Area: | | - |
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| Picture # | Description Overview of east- | Picture # | Description |
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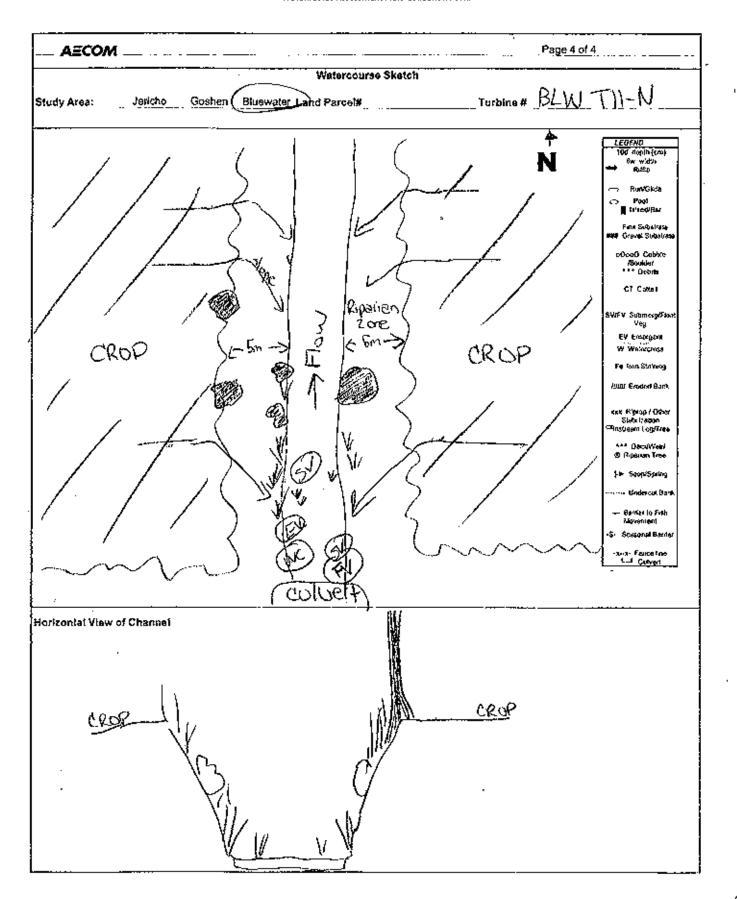


| AECOM | Page 1 of 4 |
|---|---|
| | Field Crew: (B, AO |
| | Information / |
| Study Area: Jericho Goshon (Bluewater Land Parcel# | Turbine# BLW III - NOTIN |
| Date: 301429,2011 Start time: /3/30 | End Time: |
| Weather Conditions: 60% CC | Field Notes By: |
| ļ · | +150.A |
| No. | 1. 2 |
| Hensell rd, south of | Centennial |
| UTM Co | -ordinates |
| Easting: 0466164 Northing: 48156 | 24 1 5m paradallari (020) |
| 1 | 5 1 1 |
| | Description: |
| | Description: |
| Easting: Northing: Surrounding Landuse/Pollution Sources | Dascription: Type of Watercourse |
| | Intermittent Li Channelized |
| Agriculture Wetland C | Permanent Natural Channel |
| Other: Notes: (include any inputs into the system i.e. tile drainage, seep | ance overland flour |
| 1 | |
| None abserved by | (0.99) |
| } | |
| In-Situ Water Quality | Ground Water Indicators |
| | N A |
| WT (°C): AT(°C): AT | Watercrees Bank Seepage |
| pH: Cond (s/cm): | tron Staining 🔲 None |
| Water Clarity: Clear CI Turbid | Bubbling [Other] |
| Notes: Water quality on BU WC on LBby 102d (Sm | NTTH SOUTH Sheel |
| WC on LBW GAN (Sm | I has le |
| | · con control |
| Stream b | Aprohology |
| Site Length (m): | Bank Stability: |
| 1 | Stable Slightly Moderately (Jeanship |
| Channel Dimensions | Stable Stignty Wobstately Unstable unstable |
| Mean Wetted Mean Bankfull Width | Left Bank 1 U U U |
| Width (m): (m): | |
| Mean Wetted 0-25 Mean Bankful Depth 0.35 | Right Bank 🔼 LI LI 🖂 |
| Flow Description: Almost Stagnant flo | W |
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| Notes: On Anterster author ha | 1. marchad |
| 367 cone20100 GOIOGIA- 110 | |
| Benik Slopes ~ 59 | ٥ [~] |
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Region Mumber (#58550N)

| AECOM | | | | | | | | Page 2 of 4 | |
|---|-----------------|------------|--------|------------------------|------------------|-----------|---------------------|-------------------|----------|
| | • | | | Stream Morph | ology (conti | tued) | | | |
| Substrate (< = >) 60 - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Stil CI - Clay MK-Muck DT-Detrilus Other | Descriptio: | , MK) | | | Notes: | | Aorpholog Riffie | Run | (%) Flat |
| | | | | D. | l ibitat | | | | |
| lantanam Come i | o/ \ | | | na | Ditat | | | | |
| instream Cover (None | Woody Debris | Boulders | elddoO | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | | | | 40% | | | | | |
| SUDMER | er . | | | Types of Cov | er (% cover) | | | | |
| 100-90% | اا | 30-1% | | Trees | | Shruba | \mathcal{D}^{c} | Man-mad | le |
| 90-60% | ĽJ S≉≏ | 0% | II | Grasses | 80 | Herbaceo | us | structure Othe | 98 97 |
| Notes: Ripa | 20000 M19V | zone 1. | nas | 9/13:28 | න, න | U67, g | sedge | s, blue . | uervain, |
| Obstru | otions to Fi | sh Passage | | | Draine | ge Featur | es within t | Study Area | |
| No Obstructions Natural | B | Man-Made | | Observations | | | | m buffer area | : |
| Description: | | | | LIG4. | Topog | (aph~ | 1 | | |
| Terrestrial featur | | | (No | · | | | · | | |

| AECOM | July 29, | 19 | Page 3 of 4 |
|---|---|-----------------------|----------------|
| ther General Co Minr ISF | omments Regarding the Study Area: 1005 Observed 5 of fluating sna | | |
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| Picture # | P Description | noto log Picture # | 1 None le None |
| ~\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | Onerview of | FICTOR # | Description |
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| 25 | north side close up of horth side. | | |
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| AECOM | | | | | age 1 of 4 | |
|-----------------------------------|---------------------------------------|-----------------|--|-----------------------------------|---------------------------|-------------|
| | · · · · · · · · · · · · · · · · · · · | General Inform | Field Crew: | <u>()/5</u> | . AO | |
| Study Areas Jerici | no Goshen Bluewater La | | | | | 1 - 5 - 16 |
| Study Area: Jeno Date: Tyly 20 | /// Start time: | \З / З О | '' | urome R _{EM} nd Time: | ₩-~ - | 11 ~ 38MAAT |
| Weather Conditions: | λ 17 · · · σιατε αιμας | | | na itino | | |
| l | 2010 | 1,010 | notes by. | CB | | |
| J WN | mg, 30°C | Site Locatio | | <u> </u> | | |
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| | | UTM Co-ordin | ntes | | | ··········· |
| Easting: Ø466 | 467 Northing: (| 481562 | ₽o | escription: | 500 | th side |
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| Easting: | | | 0 | | | |
| Easling: | Northing: | | | escription: | | |
| Surrounding | Landuse/Pollution Sources | | <u></u> | ype of Wate | eruçoura e | |
| Residential Agriculture Ki | Meadow Wetland Livestock | | Intermittent Permanent Ephemeral | | hannelized tural Chann | |
| | ts into the system i.e. tile drain | | mortand flows | | | |
| | of the water Quality | | | ound Water | | · |
| ~~~ | | | | _ | | |
| wt (°C): dd, 2 pH: 7/31 | AT(°C): 30 °C Cond (°B/cm): 0,4 | ч | Watercress fron Staining | у 🗀 и | ank Seepag one | , D |
| Water Clarily: Cles | ır 🕻 Turbid | 1281 | Bubbling | L3 ° | ther | LT. |
| Notes: | | • | · | • | • | |
| | | Stream Morph | logy | | | |
| Site Length (m): / 🕥 | 0 | Bank | Stability: | | | |
| '` | • | | | | Moderately | Unstable |
| Channel Dimensions Mean Wetted | Decree Standard Baselines | . — | l bereit | ınstable ~~ | unstable | |
| Mean Wetted 3_ | Mean Bankfull Width (m): | ≨ 3 left | Bank X1 | | | |
| Mean Wetted 0,2 | 5 Mean Bankful Depth (m): | 0.30 Right | Bank 🎑 | D | | Li |
| Flow Description: | slow moving. | | | | | |
| Notes: | | | | | | |
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| AECOM | | | | | | | | Page 2 of 4 | |
|---|---------------------|-----------------------|--------------|---|------------------|----------------------|-------------------|----------------------------------|----------|
| | | | ; | Stream Morph | ology (conti | rued) | | | · ·····- |
| Bubstrate (< = > Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand St - Sill Cl - Clay MK-Muck DT-Detrilus Other | Description | | | 120 1610 Ku- Vy/5 | Notes: | | phologi Riffle | cal Structure (%) Run Fiat / 9-0 | |
| | 110 | | | На | bilat | | | | |
| <u>nstream Cover (</u> | (%) ⁽ /(|) | | | | | | | ٦. |
| None | Woody Debris | Soulders | Cobble | Aquatic Vegetation* | Undercut Sank | | | Other: | |
| | | | | 190 | | | | | |
| anopy Cover (% 100-90% 90-60% | Closed cov | er): 30-1% 0% | ZRI PLUST | t Swa ead with types of Cov Trees Grances | er (% cover) | Shrubs Herbaceous | <u></u> | Man-made structures Other | _ |
| 80-30% Votes: | | V ⁿ | | G. 43556 | 7\ | | | | |
| | | | | | | | | | |
| ontedO | ictions to Fi | sh Passage | | <u> </u> | Draine | ige Features | within S | tudy Area | |
| lo Obstructions latural Jescription: | 44 | Man-Made | | Observations - 1/a | | oography will | hin 120 s | n buffer area: | |
| ferrestrial featur 'errestrial Recon F | | | No) No | | | | | | |

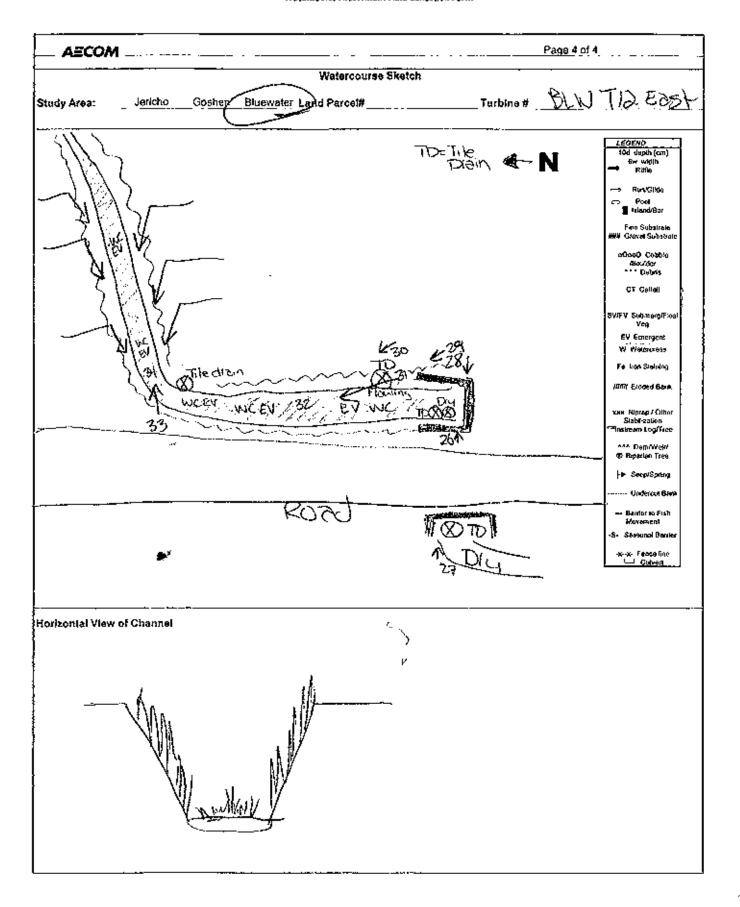
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| AECOM | | Page 4 of 4 | |
|----------------------------|-------------------------------|--------------------|---|
| | Watercourse Sket | ch | |
| Study Area:Jericho | Goshen Bluewater Land Parcel# | Turbine # (3LW - 7 | 11 - South |
| Horizontal View of Channel | Meadow Man 10 | CIOP. | EEGEND TO CERT (CITC) SW WASH RATO Pool Introdice Free Sobstate Fire Sobstate Fire Sobstate Fire Sobstate Fire Sobstate OCOO Collete (Bourse OT Cesto) SVIFV Swintergiff and Veg EV Emergent W Watercross Fe too Stationg (WIII) Eroded Bank SWAN AZAN AND DEMAYOR OR Riparion Tree Instructure S Riparion Tree Instructure S Riparion Tree Instructure S Riparion Tree Sovernon S Seasonal Barner -x-x- Foreo that Current |
|) ar | 381 | | |
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| A=0084 | Page 1 of 4 |
|---|---|
| AECOM | Field Crew: (R, AD |
| | General Information |
| Study Area: Jericho Goshan Bluewater | Pand Parcel# Turbine # BLW 112 - Fast |
| Date: W/y 29, 201) Start lime | |
| Weather Conditions: 85% CC, Win | Field Notes By: |
| • |) |
| (GIV IV AM | 1 |
| | Site Location |
| Statta (d, NO) | 14h of kippen |
| | UTM Co-ordinates |
| Easting: 6463255 Northing: | : 4815774 Bescription: Water quality |
| Easting: Northing: | 1 |
| Easting: Northing: | |
| | |
| Easting: Northing: Northing: Surrounding Landuse/Poliution Source | Bescription: Type of Watercourse |
| Residential 🗀 Meadow 🗀 | Intermittent 🗀 Channelized |
| Agriculture (2) Wetland | Permanent Maturel Channel |
| | Ephemeral 🗂 |
| Other: | 1.1 |
| Notes: (Include any Inputs into the system i.e. tile o | drainage, seepages, overland flow) |
| alle clianiz man | west side & south side. |
| | st corner in bend |
| Only water com | TING OUT OF SOUTH SIDE O(3 IN. |
| in-Situ Water Quality | Ground Water Indicators |
| WT (°C): 1913 AT(°C): 22 | Watercrees D. Bank Seepage |
| | |
| pH: 7-95 Cond (Me/cm): 1 | |
| Water Clarity: Clear 🔲 Turbid | Bubbling C Other |
| | |
| Notes: WOTER CIDENTY - 100 | ty non-colour on in side channel N-5 direction |
| MEL HALLOND ISHERN | in in side channel his direction |
| | |
| | Stream Morphology |
| Site Length (m): ~ 150 M | Bank Stability: |
| 10 (00) | Clichtin Hadayabahı |
| Channel Dimensions | Stable Slightly Moderately Unstable Unstable |
| Mean Wetted | T |
| Width (m): (m): | Town agent A |
| Mean Wetted 🔼 🛇 Mean Bankful Depth- | Right Benk D L L |
| Mean Welted 0. 18 Mean Bankful Depth- | 78250 |
| Flow Description: 112 Classes | agnant (or very little flow). |
| MO TIONS | CAUGHT COLOGIA HING 4-100). |
| Assume 410~ | INS NE |
| Notes: Transia - b CC | |
| Notes: Kilberian porte ~ | Im width |
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| AECOM | | | | | | | | Page 2 | 2 of 4 | | |
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| · | | | | Stream Morpho | ology (conti | nued) | - - | | | | |
| Substrate (< = >) Bo - Boulder Co - Cobble Gr - Grøvel Sa - Sand Si - Sill Cl - Clay MK-Muck DT-Detritus Other | Descripțio | mK | | | Notes: | | torpholog Riffie | | មព | Flat | |
| · - | | | | На | bilat | | | • | | | |
| Instream Cover (| %) | | | | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquetic Vegetation* | Undercut Bank | | | Other | | | |
| | | | | 97 | | | | | | | |
| Canopy Cover (% | 6 closed cov | er): 30-1% | | Types of Cov | ar (% cover) | Shrubs | | Mar | n-made | | |
| 90-60% 60-30% | | 0% | | Grasses | <i>a</i> 21 | Herbaceo | ua. | | Other | | |
| Notes: Mo | ot car isso, b isobor | opy out eiger | y ve | (00/5 , win | cha cha | hann Nel (| 신 (1-7 ∼ (1-7 | 5 Q | it c | Ser S | E |
| Obstru | ctions to Fi | eh Paesage | | | Dralni | age Featur | es within | Study Ar | ea | | |
| No Obstructions Natural | | Man-Made | À | Observations | | oography v | vilhin 120 | m buffer | area: | | |
| Description: 6 | Noeth Check Check | = nea -5 ale | | Flat | - | | | | | | |
| Terrestrial featur Terrestrial Recon Fo | | Yes Yes | NO NO | L | | | · | | | | |

| July 29/11 | | Page 3 of 4 |
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| mments Regarding the Study Area: | | |
| secured commy | | |
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| | Description See Alleched Map | Photo log Description Photo log Description Picture # |

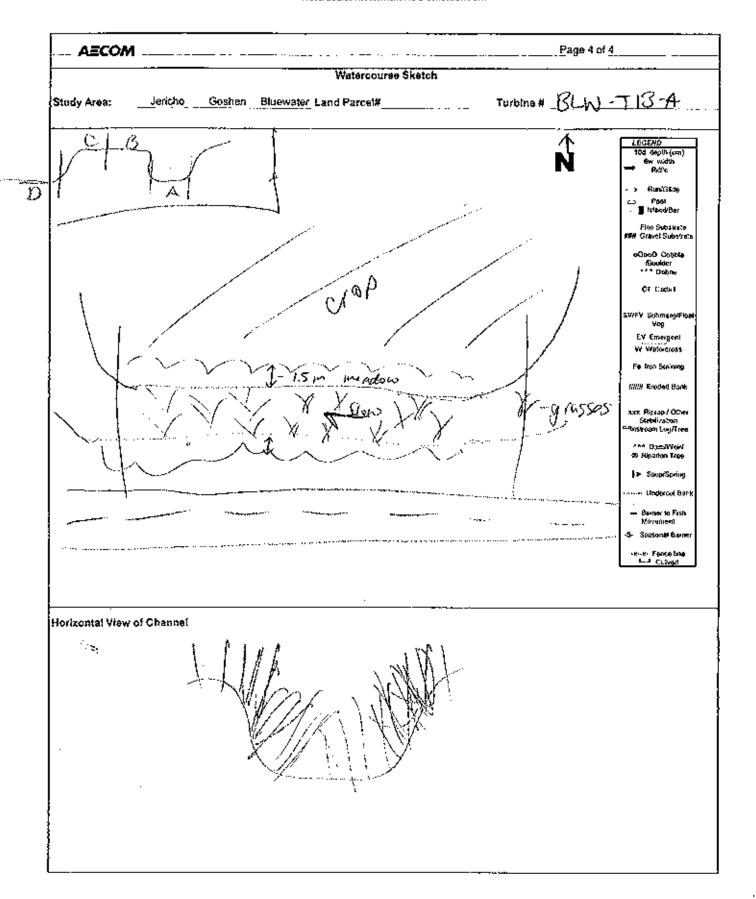


| AECOM | | | · | | | | Page 1 of 4 | | |
|---------------------------------------|-----------------------------|---|--------------|--------------|----------------------------------|----------------------|-------------------------------|-----------------|----------|
| AECUM | | · | | | Field Crew | r: <u>U</u> | 3,00 | | |
| | | | | Information | | | | | |
| Study Area: | Jaricho | Goshen Bluewater | Land Parcel# | | | | BLW - | <u> 113 - A</u> | |
| Date: 2MA | | (Start time: | <u> </u> | т | . – | End Time | : | | { |
| Weather Condition | | | | Field Notes | • | 0 | | | |
| 7. | winy | * | | | C | ß | | | ĺ |
| | | | Site I | ocation | | ····· | | | |
| St | affa | Rd - We | st of | Divis | on L | n. | | | |
| | | | | -ordinates | | | | | |
| Easting: (| 14611 | 6 D Northing: | 4815 | 6442 | | Description | n: - Craylor | pop | del |
| Easting: | · | | • | _ | | | on: | | |
| Easting: | | | | | | Description | | | |
| Easting: | | Northing: | | | | Description | in: | | |
| Surr | ounding Le | nduse/Pollution Source | 8 | | | Type of W | atercourse | | |
| Residential Agriculture Forest | 函 | Meadow II Welland II Livestock II | | P | ermikent ermanent phemeral | 区区 | Chennelized Natural Chenne | | |
| Olher: | | nto the system i.e. tile d | 1 | | | | | | |
| | în-Sile | c Water Quality | | , , , | G | round Wa | ter Indicators | | <u>-</u> |
| wτ(°c): 2̄ς | ,3 | AT(°C): | | ┤ , | Watercres | s LI | Bank Seepage | • 🎞 | |
| м <u>тео: 20</u> | | Cond (pre/cm): 4.5 | · | 1 | ron Stain! | _ | None | 3 2 | |
| • | | | | .l . | Bubbling | □ | Other | Ĩ | |
| Water Clarity: | Clear | | Ü | | | | | | |
| Notes: | $\mathcal{L}^{\lambda_{l}}$ | lightly the bio | d . | | | | | | |
| | Γ. | | Stream | dorphology | _ | | | | - |
| Site Length (m): | bom | | | Bank Stabili | ty: | | | | - |
| Changel Dimer- | lene | | | | Stable | Slightly unstable | Moderately unstable | Unstable | 1 |
| <u>Channel Dime</u> ns Mean Wetted | | Mean Bankfull Width | <u>.</u> | 1,44,75=-1 | 5 % | unstable | anstable | ☶ | |
| Width (m): | 0.0 | (m): | 0.8 | Left Bank | કન્પન્ | | _ | J4 | |
| Mean Wetted Depth (m): | 0.15 | Mean Bankful Depth (m): | 0.35 | Right Bank | Ø | | _ | П | |
| Flow Description |): | ديملا منسي | | - | | | | | |
| | moo | berate flow | | | | | | | |
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| Notes: | | | | | | | | | |
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| AECOM | | | | | | | | Page 2 o | 14 | | |
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| | | | 5 | Stream Morph | ology (conti | nued) | | | | | |
| Subatrate (< = >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Cl - Clay MK-Marck | Description | , 7 d | | | Notes: | | orpholog Riffie | Run | 1 |) Flat | <u>t</u> |
| DT-Detritus Other | | | | | | | | | | | |
| | | | | | bilat | | •• | | | | |
| Instream Cover (| %) B5 | - | | | | | | | | | |
| None | Woody | | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | | | |
| | | | | 800 | | | | | | | |
| Quass | | ď | | | | | | | | | |
| Canopy Cover (% | closed cov | ar): | | Types of Cove | er (% cover) | | · | Man-n | nade | | |
| Canopy Cover (% 160-80% 96-60% 66-36% | .а | | מם | Trees | 8r (% cover) | Shrubs | F8. | struct | | | |
| Canopy Cover (% 160-80% 90-60% | closed cov | ar): 30-1% 0% | םם | Trees | | Shrubs | F8 | struct | tures | | |
| Canopy Cover (% 190-80% 99-60% 69-36% Notes: | closed cov | ar): 30-1% 0% | םם | Trees | 190 | Shrubs | | _ struct | tures Other _ | | |
| Canopy Cover (% 180-80% 98-60% 68-36% Notes: Obstructions Natural | closed cover | ar): 30-1% 0%) 9 ~ 6 | ر هاي ا | Trees |) 0 to | Shrubs Herbaceon | s within : | _ struct | tures Other_ | | |
| Canopy Cover (% 180-80% 98-60% 68-36% Notes: Obstructions | closed cover | ar): 30-1% 0%) 9 ~ 6 | ر هاي ا | Trees Grasses | Draini of Land Top | Shrubs Herbaceon | s within : | _ struct | tures Other_ | | |
| Canopy Cover (% 180-80% 98-60% 68-36% Notes: Obstructions Natural | closed cover of the cover of th | ar): 30-1% 0%) 9 ~ 6 | ر هاي ا | Trees Grasses Observations | Draini of Land Top | Shrubs Herbaceon | s within : | _ struct | tures Other_ | | |

| AECOM | July 29/11 | BLW-TI | 3 -A Page 3 of 4 | |
|--|-----------------------------------|------------------------|---------------------------------------|---|
| Other General Co | omments Regarding the Study Area: | <u>-</u> | • | , |
| - fish | observed | | | |
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| Picture # | Description | Photo log Picture # | Description | |
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| AECOM | | | | feld Crew | : CA | \$ | | |
| | | | nformation | | | <i>A</i> 3. | | |
| Study Area: Jer | icho (Gosheg) Bluewaler | | | | | | 13B | |
| Dale: Ang 9, Q | O// Start time: | 9:30 | | | E <u>nd T</u> ime: | | | |
| Veather Conditions: | | | Field Notes & | | n | | | |
| Overca | <i>3</i> ∤- | | | CA | 5 | | | |
| | . Like and St | affa R | acatton | • | | | | |
| | | UTM Co | -ordinates | | | | | |
| Easting: 0 4 | 00894 Northing: | 4815 | 84 | | Descriptio | n: Raad | Sido | |
| Easting: | | • | | | Descriptio | <u>ν</u> : | | |
| Easting: | | | - · · - · · · · · · · · · · · · · · · · | | Descriptio | | | |
| Easting: | Northing: | | | | Descriptio | n: | | |
| Surround | ng Landuse/Pollution Source | 8 | | | Type of W | atercourse | | |
| Residential & Agriculture I Forest I Dither: | Meadow Cl Wetland Cl Livestock Cl | | Pe | ermittent rmanent chemeral | | Channelized Natural Channe | | |
| later discount and the | outs into the system i.e. tile di | rainana acan |) Anna Audrians | d Nauð | | ``` | | |
| roles. (micious any un | in. pipe wikd en | Ancth | side (se | esi de | Stal 5 | ide) | | |
| we are | in pipe with an | , , , , , | , | | | o | | |
| - tile drain | an South side (a | gri sido |) Blow | ing " | minisho | ··· | | |
| | In-Site Water Quality | | <u> </u> | | | ter Indicators | · · · · · · · · · · · · · · · · · · · | |
| | 1.=nn 2.044 | | ١, | Vatercres | s 🖾 | Bank Seepag | re 🗖 er | |
| ALCO: 95 5' 25 | • | | | vaterores ron Staini | | None | | |
| <u>н: 7,35</u> | Cond (Matem): 0.0 |) 77 | 1 | ubbling | • | Other | | |
| Water Clarity: Cl | ear 🔲 Turbid | ,ম্ব | I | all po | | | _ | |
| lotes: Pain full . | eouty marring 50 m | Stream f | Aarphology Bank Stabillt | y: | | | , | ••• |
| • | | | | | Silghtly | Moderately | | |
| hannel Dimensions | | | | Stable | unstable | unstable | Unstable | |
| Nean Welled 2.5 | Mean Bankfull Width → (m): | 3.5 | Left Bank | ऋ | C.J | E | 二 | |
| Tean Wetted O | 35 Mean Bankful Depth (m): | 0.65 | Right Sank | 254 | ப | L | <u></u> | |
| low Description: | | | | | | | | |
| na | notable blow | | | | | | | |
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| Notes: | | | | | | | | |
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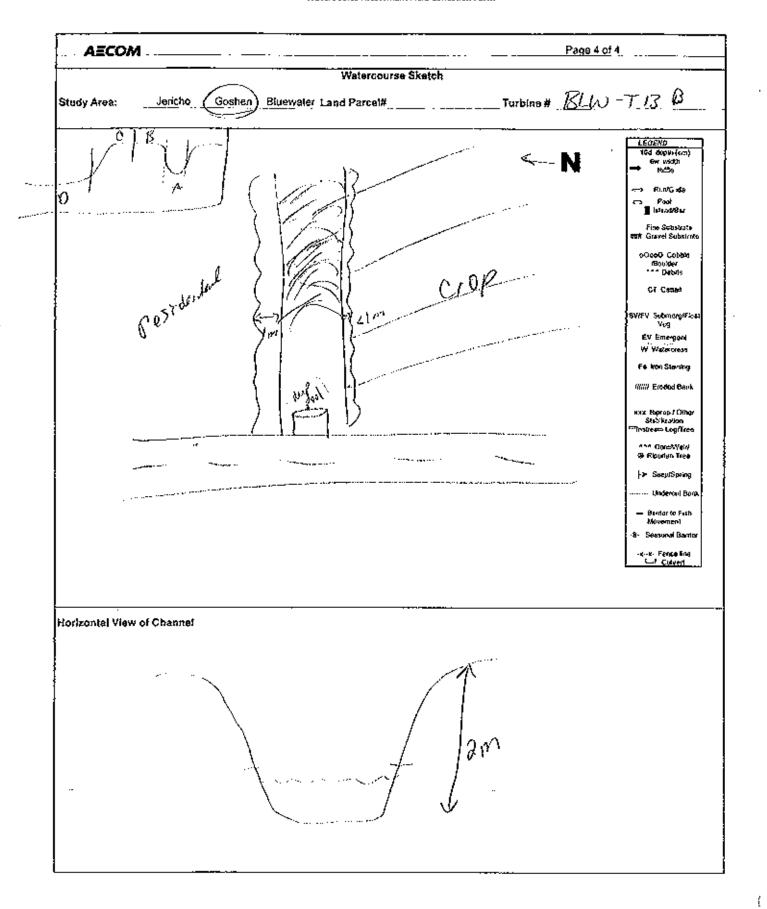
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| | • | · · · · · · · · · · · · · · · · · · · | | Stream Morph | ology (cont | inued) | ···· | | |
| Substrate (< = >) Be - Bounder Co - Cobble Gr - Gravel Sa - Sand St - Silt Ct - Clay MK-Muck DT-Detritus Other | Descriptio. | n 0>gr: | | | Notes: | Pool / O | Riffle | nt base o | Fiat 90 |
| nstream Cover (| _{%1} 80 | | | На | l blat | <u></u> | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | | 5 | <i>8</i> 0 | 75- | | | | | |
| Canopy Cover (% | closed cov | - | | Types of Cov | | • | | Man-made | |
| 100-90% 90-60% 60-30% | <u>⊠</u> ∏ | 30-1% 0% | ü | | 2 98 | Shrubs Herbaceou | Б | ekuctures Other | · · · · — |
| Notes: Well | veg | ban | Ars. | | 15 18 | | | | |
| Obstru | ictions to Fi | вь Разваде | | | Drain | nge Feature | s within \$ | Study Area | ········ |
| No Obstructions Natural | 1≥4 . | Man-Made | L | Observations | of Land To | pography w | ithin 120 : | m buffer area: | |
| Description: | | | | blat | Lip | ogroph |) ¹ ^ | arla | |
| <u></u> | | | | | | | | | |

| AECOM | BLW-T | 13 B | | Ang 9/11 | ` Page 3 o | of 4 |
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| Other General Com | nents Regarding | the Study Area: | | | | |
| | | liameter, ved hywa | • | | water | |

| Picture# | Description | oto log Picture # | |
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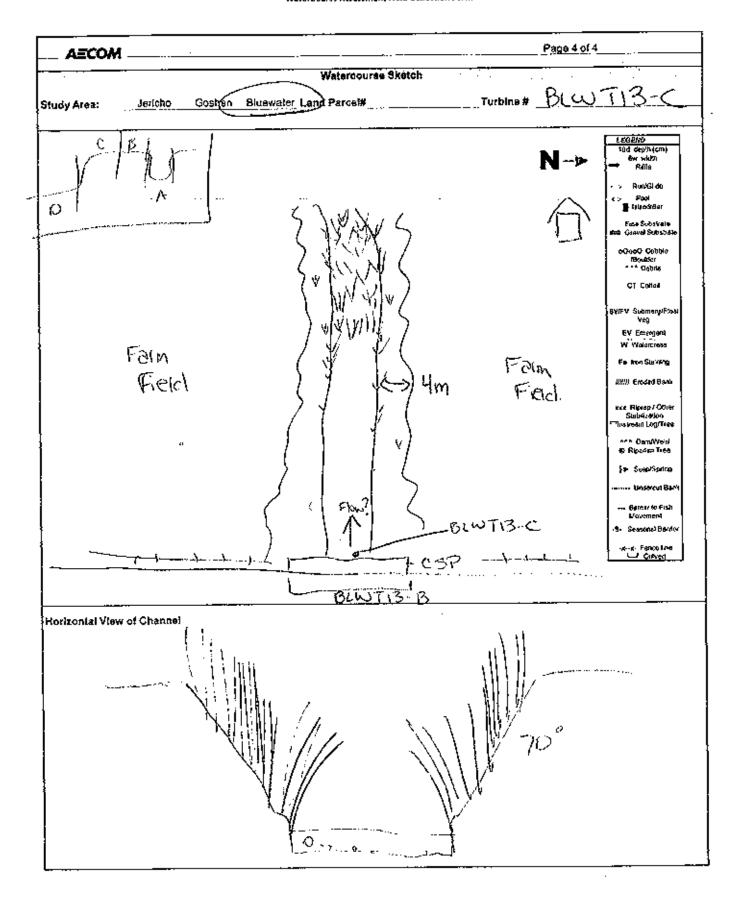
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| | | | | | inta | Field Crev | w: ()." | <u>Baos a</u> | A. Da(4 |
| Charles Anna | Jericho | Goshen | Bluewater | General Land Parcel | Information | 1 | · | BLW | 712 A |
| Study Area: | | 011 | Start time | Land Parcell | 50 | | Furbine # End Time | | Horr |
| Weather Condition | • | <u> </u> | otalt tinte | ' - | Field Note | # .a #\ | ENG TIME | <u>. 11 - 2</u> | |
| ish tail | | | | | Field Note | Dag | クブ | | |
| | | | | | <u> </u> | | ~~ (| · · · · · · · · · · · · · · · · · · · | |
| Mou | lisar | \ Cir | ٠ د | ハウイナ <i>/</i> | Location S | Sta | 436 | (d) | . |
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| | | | | UTM G | o-ordinates | | | · · · · · | |
| Easting: () | LACKER | ₄ 2, | Northian | | | | Danaslati | المحجار والسه | From 10 |
| Easting: | row i | <u>,</u> | Northing: | | 100 (| | | | -710/FE TO |
| | | | _ | | | . | Description | | |
| Easting: Easting: | | | Northing: Northing: | | | | Descripti Descripti | | |
| Surrat | unding Lan | duse/Politit | ion Source |) B | Τ | · · · · | Type of V | Vatercourse | • |
| Residential | <u> [ij</u> | Meadow | Œ | | 1 (| ntermittent | <u></u> | Channelized | 7.7 |
| Agriculture Forest | Ħ | Wetland Livestock | | | | Permanent Ephemeral | | Natural Chann | el III |
| Other: | | | | | | -promotel | | | |
| N/A | | | | | | | | | |
| | In-Situ | Water Quel | ity | | | G | round Wa | ter Indicators | · · · · · · · · · · · · · · · · · · · |
| WT (°C): | <u>-</u> [| AT(°C): | 15 | | 1 | Watercres | • 🚁 ´ | - RB Bank Seepag | a { |
| pH: | | | :m): - | | | iron Staini | ing 🗀 | Мола | ALD. |
| Water Clarity: | Clear | ביו | Turbld | χı |] | Bubbling | | Other | |
| | | | | _ | | -10 0 | | _ \\ \ | |
| Notes: WAR | i W | dity | 19 K | ery or | Rm. | 118-15 | - 0 | bic tea | ≥ හ් ගෙ |
| | | | | Stream | Morphology | | | | |
| Site Length (m): , | ~ ® (| .) | | | Bank Stab | IIIty: | | | |
| A) | | | | | | Stable | Slightly | Moderately | Unstable |
| Channel Dimension Mean Wetted | 1 | | full Width | | 1 | | unatable | | |
| Width (m): | | m): | | 30 | Left Bani | · 194 | | Ľí | |
| Mean Wetted Copth (m): | | Mean Bank: m): | ful Depth | 04.0 | Right Ban | k !!! | | EI . | <u> </u> |
| Flow Description: | +- n | 2 0ie | sible | flou | | | | | • |
| Notes: | | | | | | | | | |
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| Minnou | as av | 22 <i>e</i> (/ | r€9 . | | | | | | |
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| AECOM | | | | | | | | Page 2 of 4 | |
|--|------------------|--------------|----------------|------------------------|------------------|--------------------|-----------------------|-------------------------------|------------------|
| | | | 9 | tream Morph | ology (contin | wedt | | | |
| Substrate (< =>) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sil Cl - Clay MK-Marck DT-Detritus Other | Description | (> Hk | | • | Notes: | | Prophologic Riffle | aí Structure (Run | %) Fiat GO |
| | | | ·············· | Н | ibitat | | | ···· | |
| Instream <u>Cover (</u> | × 50 | 0% | | | | | | | |
| None | Woody Debris | Bouldars | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | | | 5 | 4.0 | | 55 | %-a | elhango 355 + 7 | 78 5hrub5 |
| *Aquatic Vegetat | | resent (atga | | | | | | | |
| Canopy Cover (% 100-90% 90-80% 60-30% Notes: | 13 130 180 | 30-1% 0% | <u></u> | <u> </u> | <u> 80</u> | Shrubs Herbaceo | | Man-mad structure: Othe | 9 |
| Va(m) | | sh Passege | | 9II | | | es within S | tudy Area | |
| No Obstructions Natural Description: | 曾 | Man-Made | | Observations | | pography v | wilhin 120 r | n buffer area: | |
| Terrestrial featur Terrestrial Recon F | | - | (No |) | | | | - | |

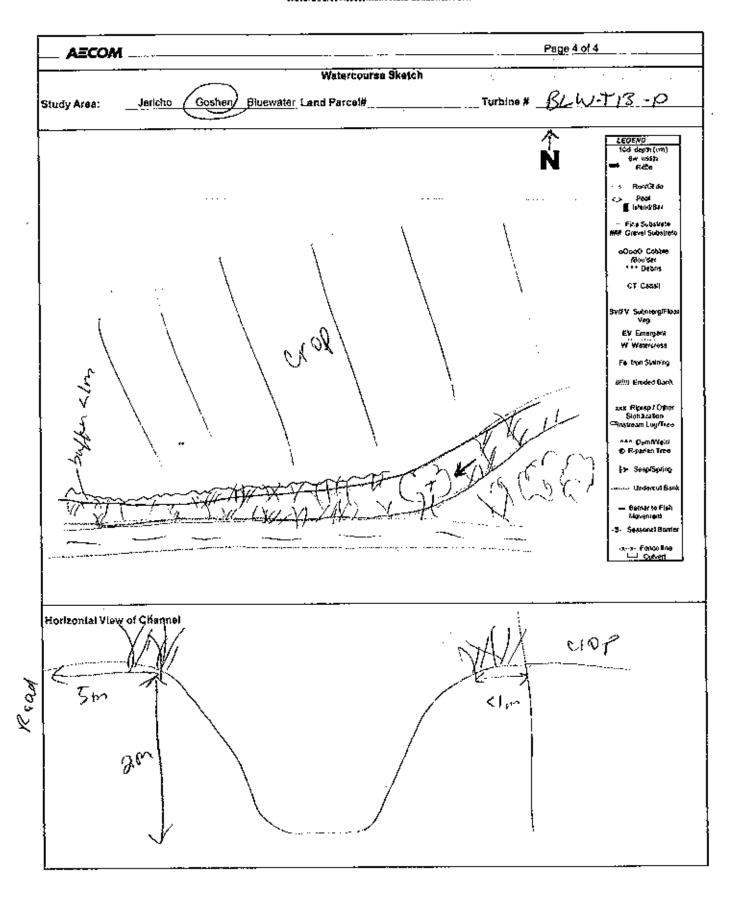
| Other General C | omments Regarding the Study Area: | DIN-1 | 18 C Page 3 of 4 | |
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| | ∴ <u>.</u> | | | |
| 21-1 | Pi | noto log Picture # | | |
| Picture # | Description CUC(View) | TARMEN P | Description | |
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| 5 | colver + (SP | | | |
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| AECOM | Page 1 of 4 |
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| AECOM | Fleid Crew: |
| | General Information |
| | and Parcel#Turbine # BLWT/3D |
| Date: Aug 1, 2011 Start time: | End Time: |
| Weather Conditions: | Field Notes By: |
| Staffa Road | $\mathcal{C}\mathcal{B}$ |
| G10 (C 0 0) | Site Location |
| | - · · · · · · · · · · · · · · · · · · · |
| , | |
| | UTM Co-ordinates |
| Easting: 04 60430 Northing: | 4815522 Description: adja cent |
| - | Description: |
| | Description: |
| Easting: Northing: | Description: |
| Surrounding Landvse/Pollution Sources | Type of Watercourse |
| Residential 🗀 Meadow 📮 Agriculture 🖾 Wetland 🗀 | Intermittent C Channelized Mi |
| Agriculture t24 Wetland ☐ Forest ☐ Livestock ☐ | Permanent |
| Other: | <u> </u> |
| Notes: (include any inputs into the system i.e. tile drain | |
| - drainage pipe noted to | South Side |
| o · | |
| In-Situ Water Quality | Ground Water Indicators |
| | Otobio tista dimendia |
| WT (°C): / 9, 5 AT(°C): | . Watercress ₩ Bank Seepage □ |
| pH: 7.34 Cond (malcm): 0.499 | |
| Water Clarity: Glear 🖾 Turbid | Bubbling 1 Other |
| | |
| Notes: | |
| | |
| | |
| Site Length (m): ~ 5 () kg | Stream Morphology Bank Stability: |
| 3 0 kg | |
| Channel Dimensions | Stable Slightly Moderately Unstable unstable |
| Mean Welted 2:7 Mean Bankfull Width | |
| Width (m): (m): | !: V |
| Mean Wetted Depth (m): 0.05 (m): | 0,15 Right Bank 🗷 🛄 🗆 |
| Flow Description: | |
| ton besorption. | |
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| Notes: | |
| Widow of Drosion one | of Slumping on left bank, but entire banks |
| runch very wed we | banke |
| | 57070C3 |

| AECOM | | | | | | | | Page 2 of 4 | |
|---|-----------------|------------------------|------------|------------------------|------------------|----------|-----------------------|---------------------------------------|---------------|
| | | | | Biream Morph | alogy (confi | nuad) | | · · · · · · · · · · · · · · · · · · · | |
| Substrate (< = >) Bo - Sourcer Co - Cobble Gr - Gravel | Description | n | · • | or daily life by | | | lorphologic Riffle | Run | (6) Fiat |
| Sa - Sand Si - Siff CI - Clay MK-Muck DT-Deldius Other | 27.> | ק?g כ | O CO | + | Notes: | | | 1,00 | <u>l</u> .j |
| | | | | | 7-71-4" | | | | |
| | %) 8 <i>5</i> | | | . на | bitet | | | | |
| instreem Cover (None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | • | | 10 | ₽ Sh | | pres | hangi | ツ - 10 | |
| Canopy Cover (% | closed co | | | Types of Cov | er (% cover) |) | | . <u>.</u> | |
| 100-90% | 14 | 30-1% | 6.7 | Trees | i | Shrubs | | Man-made | i |
| 90- 6 0% 60-30% | ü | 0% | ij | Grasses | 190 | Herbaceo | v s | Other | |
| Obstructions No Obstructions Natural Description: | | sh Passage Man-Made | <u> </u> | Observation - 6/a | s of Land To | | | Study Area m buffer area: | |
| Terrestrial Recon F | | _ | (a) | | | | | | . <u>–</u> |

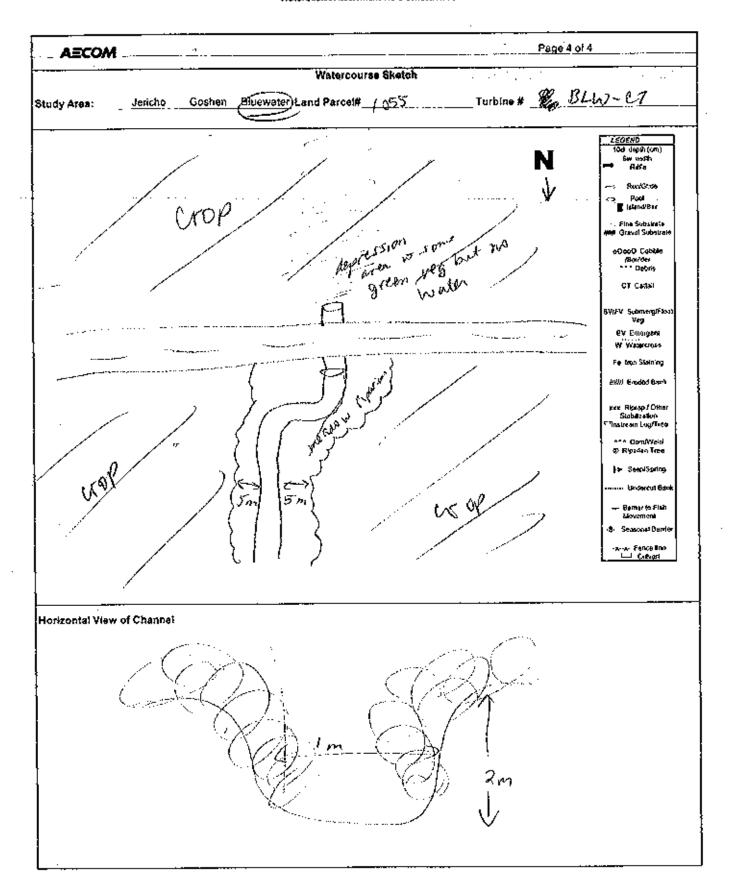
| | ommenta Regarding the Study Area: eves reads de drois | BUN 113 D rage - pipo. | nted | |
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| | | Photo log | | . , |
| icture# | Description | Picture # | Description | |
| 6 | sulvier - Dast | | | |
| 7 | overview - west | | | |
| 8 | Stream bed | | | |
| 9 | Pipe | | | |
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| 47004 | Page 1 of 4 |
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| AECOM | Field Crew: (B, AO |
| | Information |
| Study Area: Jericho Goshen Bluewater Land Parcel# | |
| Pate: Aug 10/11 Start time: 1/1/0 | End Time: |
| Vealher Conditions: | Field Notes By: |
| 1. la. 1. 1807 | <i>U</i> B |
| SHe E | ocation |
| Staffa in - east of Bronson | |
| o moth ou fact of phonon | ; |
| UTM Co | -ordinates |
| | |
| Easting: 1947323 Northing: 75136 | 37 79 Bescription: Colors South S |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Easting: Northing: | Description: |
| Surrounding Landuse/Pollution Sources | Type of Watercourse |
| Residential | Intermittent 🖾 Channelized 🗀 Permanent 🗀 Natural Channel |
| Agriculture DA Wetland — Forest L Livestock — | Ephemeral 🔲 |
| Pitter: | |
| lotes: (Include any inputs into the system i.e., tile drainage, seep | |
| - rolling hills was all draw | in into valley |
| Total agree of the | |
| | , |
| In-Situ Water Quality | Ground Water Indicators |
| VT (°C): AT(°C): | Watergress 1 Bank Seepage L1 |
| | tron Staining I□ None 🔀 |
| | Bubbling 🖺 Other |
| Water Clarity: Clear 🖾 Turbid 🚨 | |
| totes: 111 ton 1 | |
| NT too for he ma | · |
| • | İ |
| 9/aem 1 | Morphology |
| Site Length (m): ~ 15 m | Bank Stability: |
| and and surface to the second | |
| Channel Dimensions | Stable Slightly Moderately Unatable unstable |
| Mean Wetled Mean Bankfull Width | Left Bank 🖾 🗂 🗀 |
| Nidth (m): ^ ().5 (m): ~ 0.7 | Lett Oatek |
| Wean Wetted on a Mean Bankful Depth of 3 | Right Bank 😕 🗆 🗆 🖽 |
| Depth (m): 0.02 (m): | |
| flow Description: no flow noted | |
| · you given not to | |
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| Notes: | |
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| AECOM | | | | | | Page 2 of 4 |
|--|-----------------|-----------------------------------|-------------|------------------------|------------------|--|
| | | · · · | | Stream Morpho | ofogy (confir | ued) |
| Substrate (< = >) Bo - Soulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Cl - Clay MK-Muck DT-Detritus Cliner | Description | The street | | | Notes: | Morphotogical Structure (%) Pool Riffle Run Flat N/A |
| | | - | | He | l bitat | · · · · · · · · · · · · · · · · · · · |
| Instream Cover (| (%) <u>3</u> 4 | J | | | | , |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: |
| | | | 5°V | 5V | | |
| | " | | | | | |
| Canopy Cover (9 | | | | Types of Cov | | |
| Canopy Cover (% 100-90% 90-60% 60-30% Notes: | % closed cov | er): | | | | |
| 100-90% 90-60% 60-30% Notes: | closed cov | or): 30-1% 0% | | Trees Grasses | Drain. | |
| 100-90% 90-60% 60-30% Notes: Obstructions | closed cov | ar): 30-1% 0% sh Passage | | Trees Grasses | Drain. | Shrubs (1) Man-made structures Other Other |
| 100-90% 90-60% 60-30% Notes: Obstructions Natural | closed cov | er): 30-1% 0% sh Passage Man-Made | | Trees Grasses | Drain. | Shrubs (1) Man-made structures Other Other |

| her General Comments Regarding the Study Area: | | | | | Page 3 of 4 | | | | | | | | | | |
|--|----------|---------|----------|--------|--|-----|---------|------|-----|-----|--------|----------|------------------|-------|-------|
| ter General Com | ments R | egardir | ng Ihe S | tudy A | res: | | | | | | | | | | |
| > Stream | كن | Plo | weo | ረ (| over | 20 | u.Hr. | of | 110 | 10 | rad | | | | |
| > Stream > North | or | 4 | 801 | 101 | rv0 | acc | ess | • • | Con | Ao(| not | # | Inve | stiga | ĸ |
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| Picture# | | | Deacel | puon | | | Picti | are# | | | Deacu | риоп | - ··· | | 1 |
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| AECOM | | • | , | Fleid Crews | H.N | Page 1014 • d (₽_) | A. Stebler |
|--------------------------------------|---------------------------------------|--------------------------|----------------|-----------------------------------|-------------------------------|-----------------------------|----------------|
| | Lordon Bridge | | il Information | | Şi ∳t jurbine # | | |
| Study Area: | Jericho Goshen (| Bluewater Land Parce | 1# REM 1053 | T | jurbine # | - CIV | |
| | | Start time: 7:15 | | | | : 7:55 N | <u> </u> |
| Neather Condition | ns: Clear, 16'c | | Fleid Notes | By: N.) | 4 odges | | |
| | · · · · · · · · · · · · · · · · · · · | Sita | Location | ····· | | | |
| Aα | ess from Centen | | | won Li | nę | | |
| | | | o-ordinates | | | | |
| Easting: | | Northing: | | | Descriptio | oū: | |
| Easting: | | Northing: | | | Description | on: | |
| Easting: | | Northing: | , | |)escriptic | o <u>n:</u> | |
| Easting: | unding Landuse/Pollut | Northling: | | | Pescriptio | | |
| | | to applicas | 1 . | | ∵_ı YP e et a ı | Vatercourse | - D·••I |
| Residential Agriculture Forest | Meadow Wetland Livestock | | P | ermittent ermanent phemeral | H H | Channelized Natural Chan | |
| Other: | ny Inputs Into the syste | na la sita disaluana ana | | ad flame | | | |
| TOTOD (MICHAEL | Ivon staining, La artesian | watercress no | ted. Fove | sted b | inffer ion fr | 10-50n un paste | , wide we |
| - | In-Situ Water Qual | ity | 1 | Gr | ound Wa | ter indicators | |
| | | | | | | , | *** |
| <u>мт (°С): /</u> | <u></u> - | 17-6 | | Watercress | / | , Bank Seepa | ge 0[Z] [∐] |
| ян: <u>М</u> | Cond (sto | :m): | ⊸ i | iron Stainin Bubbling | | None Other | |
| Water Clarity: | ctear 🗹 | Turbid LJ | | Caoping | ,I | Othor | لمسبؤ |
| Notes: | WY not record | A | | | | | |
| | GPS battanies de | rad | | | | | |
| | | Stream | Morphology | | | | |
| Site Length (m): | 300m | | Bank Stabili | ity: | | | |
| | | | | Stable | Slightly | Moderately | Unstable |
| Channel Dimensi | | | | | unstable | | |
| Viean Wetted Width (m): | 1,25 m Meen Bank (m): | full Width 3.0 h | Left Bank | 3 | | | <u> </u> |
| Mean Wetted Depth (m): | Old Give Mean Bank (m): | ful Dapth O. 6 n | Right Bank | | 111 | <u>u</u> | |
| Flow Description | Minor flow | halow confli | rener; | trickle | abor | e conflu | me |
| Notes: | Seasonal low | flow borner | -3 -> Fi | ffles 1 | '-2 cm | n deep | |
| | Stream buries | l (pastured su | vale) als | of to | vested | teach | |

Anger (Number 4001/63)

| AECOM | | | | | | | | Page 2 of 4 | |
|--|-----------------|---------------------|-------------------|------------------------|-------------------|-------------------------|-----------------------------|--------------------------|------------------------------|
| | | | | Stream Morph | ology (conth | nneq) | ••• | | • |
| Substrate (< = >) Bo · Bourder Co · Cobble Gr · Gravet Sa · Sand Si · Silt Cl · Clay | Descriptio | Bo=Co: | > Gv | | Notes: | Pool 30 | 30 | Run | Flat /+> |
| MK-Mack DT-Detritus Other | oV4v PoSed | lying ha Esporad | vdpan c ically | lay ox- | topogr | raphy | hanned w exte n foves | nsive lated vall | h variable wal bank ey |
| logizago Carre f | 0.5 | | | H | bitat | | | | • |
| Instream Gover (| Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | 10% | 45% | 45%. | Na | ~/a | | | | |
| *Aquatic Vegetat | ~ | , | | ept spor | | n (le secvi | ઃડડ | | |
| Cenopy Cover (% | closed coy | : 0 1}: | | Types of Cov | er (% cover) | | | ~ | |
| 100-90% | | 30-1% | | Trees | 100% | Shrubs | | Man-madi atructure | |
| 90-60% 60-30% | H | 0% | בנ | Grases | | Herbaceo | us | Othe | ,,,,, |
| Notes: | N٥ | overha | ngny | vey. | | | | - | |
| Chatca | ictions to Fi | ah Passana | | i | Drains | age Fostio | rea within t | Shirly Area | |
| No Obstructions Natural | | Man-Made | | Observations | | _ | | m buffer area: | |
| Description: 54 | tasonal | low. | flow | Roli | ling top | ograph | ly (past agr | tuve zwiood vcubbune) | dland, > |
| Terrestrial featur Terrestrial Recon Fo | | (les) Yes | No (40) | of ver | nture F mal po | ols st | / moi | | numarais |

Other General Comments Regarding the Study Area:

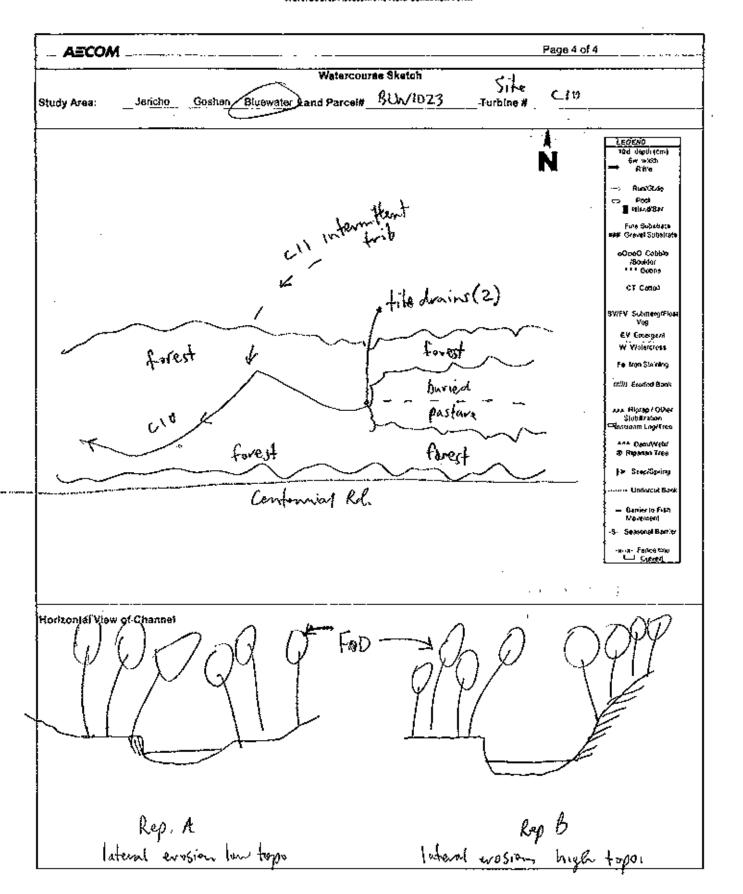
High quality morphology and habitat structure/cover by his limite.

No fish observed.

Evidence of high flows (lateral bank evosion, down-

| | Pł | · | | | |
|-------------|---------------------------------------|----------|-------------|--|--|
| Picture# | Description | Picture# | Description | | |
| 907, 909 | from staining at all send of reach | | | | |
| 908, 918 | kep, channel form | | | | |
| 910 | Exposed hardpan clay | | | | |
| 913 | Representative substrate | | | | |
| 915 | Confluence to Cil trib | | | | |
| 914 | Bank evosion | | | | |
| 923 | Tile outlets @ Ws and of open channel | | | | |
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dengan merekan 40 bishti

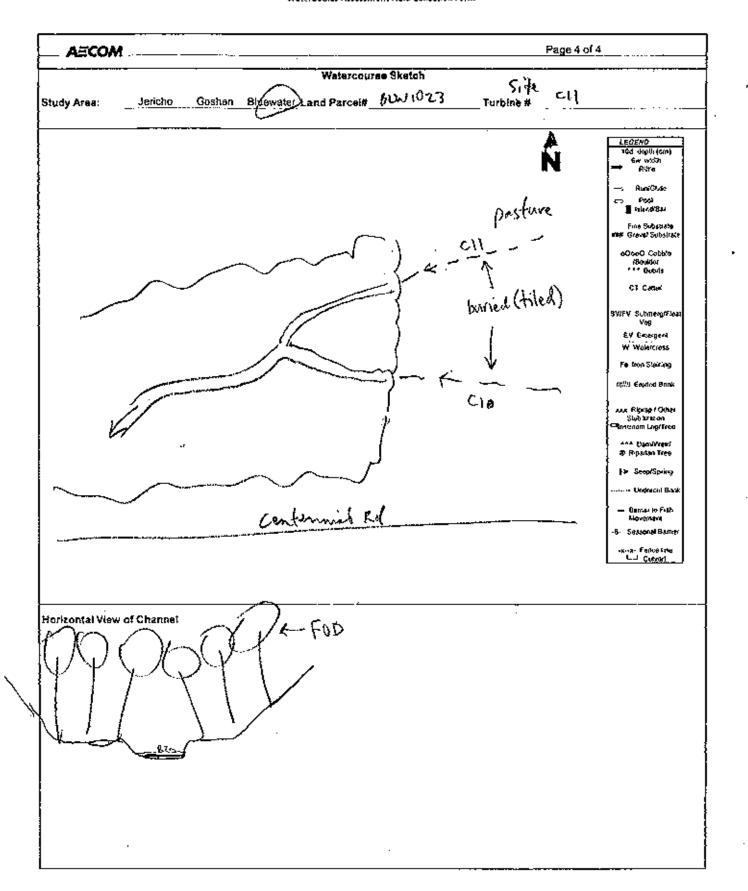


| AECOM . | | Page 1 of 4 |
|---------------------------------------|---|--|
| 7CC0771 | | Floid Crow: N. Horlges, A. Steblin |
| | , and a second | Information |
| Study Area: Jericho | Goshen Bluewater Land Parcell | |
| Sate: <u>59 + 28/11</u> | Start time: 7:55 | End Time: \$:30 |
| Veather Conditions: Suv | my, breezy; 16:c | Flefd Notes By: $\mathcal{N}\mathcal{H}$. |
| | Site | ocation |
| San | e as ClV | |
| | UTM C | ordinates |
| Easting: | Northing: | Description: |
| Easting: | | |
| Easting: | | |
| Easting: | Northing: | Description: |
| Surrounding La | nduse/Politition Sources | Type of Watercourse |
| Residential Agriculture E Forest E | Meadow | Intermittent |
| | nto the system i.e. tile drainage, seep | , |
| | | |
| In-Sit: | r Water Quality | Ground Water Indicators |
| VT (°C): /3°C | AT(°C): 17°C | Watercress 🗀 Bank Seepage 🗀 |
| | | Iron Staining [None |
| H NA | / | Bubbling [Other [|
| Water Clarity: Clear | 💯 Turbid 🗀 | _ |
| lotes: WQ N | of recorded | · · · · · · · · · · · · · · · · · · · |
| in aps b | patternes clean | |
| | | Morphology |
| ille Length (m): (0) N | n | Bank Stability: |
| | • | Stable Slightly Moderately Unstable |
| hannel Dimensions | | unstable unstable |
| fean Wetted 0-7 m | Mean Bankfull Width 3.3 m | Left Sank III II II |
| tepth (m): | Mean Bankful Depth 0.85 w | Right Bank () |
| How Description: whe | rmittent. Isolated p | and so any contraction of the second |
| votes: Stoan | n buried (pastured su | whe) who of forested reach |
| | (| , |
| | | |

Nagel Market (\$1150N)

| AECOM | | | | | , | | | Page 2 of 4 | |
|--|-----------------|---------------|-----------|------------------------|------------------|------------|--|----------------|---|
| | | ". | · · | Stream Morph | ology.(conti | nued) | ·· · · | •• | . |
| Substrate (< = >) Bo - Soulder Co - Cobble Gr - Gravel Sa - Sand Si - Sál Ci - Clay MK-Muck DT-Detritus Other | Descriptio | n -> Co = | | | Notes: | | Riffle 30 | Run Flat | |
| | | · · · · · · | | Ha | t bitat | | • • • | | · · · · - · · · · · · · · · · · · · · · |
| Instream Cover (| %) | | | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | 5/ | 30% | 30% | nla | nla | | | | |
| *Aquatic Vegetat | | resent (alga | e, submer | gent, emergen | t etc.) | | | | |
| Canopy Cover (% | closed cov | rer): | | Types of Cov | er (% cover) | | ······································ | | |
| 100-90% | Ca/ | 30-1% | | Trees | 1001 | Shruba | | Man-made | |
| 90-60% 60-30% | | 0% | | Grasses | | Kerbsceo | <u>us</u> | Structures | - |
| Notes: | clions to Fi | sh Passaga | | T · " | Drains | age Featur | es within : | Study Area | |
| No Obstructions | ťП | Man-Made | 7=-1 | Observations | | | | - | |
| Natural | | MIGH-INEME | | Doservations | at Land 10) | pograpny v | vitnin 120 | m buffer area: | |
| Description: | eason. | d low | flow | R | alling | pasti | me la | nd + forest | |
| | | . 60 | | / | .4 | ٠ | | | |
| Terrestrial featur Terrestrial Recon Fo | | | No /No | 40D (1 | matune | sugar | brought | le-beech) | |
| | | | | | | | | | |

| AECON | 1 | Page 3 of 4 | | | | | |
|---------------|--|---------------------|-------------|--|--|--|--|
| her General C | omments Regarding the Study Area: | | | | | | |
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| Picture# | Description Page | to log Picture # | Description | | | | |
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| 724 | surate us of open channel | | | | | | |
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| | open charmel | | | | | | |
| 7, - | tile drain als and if open channel Rep. substrate, flow, mor- phology | | No. | | | | |
| 928 | Dhology | | | | | | |
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| AECOM | | Page 1 of 4 Field Crow: N. Hodges, A. Stedlin |
|---|-----------------------------|--|
| | | I Information |
| | Slueweter Land Parce | 1# BLW 1079 Tyrolne# C34 |
| Date: \$4pt 18/11 | Start time: 9:30 | End Time: 10100 |
| Weather Conditions: Overcast, 11 | <i>:</i> | Field Notes By: No Hodges |
| | • | Location |
| Access from Brong | som in oppose. So | som south of Parillian Rd |
| | UTM C | co-ordinates |
| Easting: | Northing: | Cescription: |
| Easting: | Northing: | Description: |
| Easting: | Northing: | |
| Easting: Surrounding Landuse/Pol | Northing: | Description: |
| | 4-11 | Type of Watercourse |
| Residentiat Meado Agriculture Wetlar Forest Livestoci | iā 📮 | Intermittent A Channelized. Permanent A Natural Channel Ephemeral |
| Other: Notes: (include any inputs into the sys | tem i.e. lile drainage, sec | apages, overland flow) |
| Overland GPS batter | | fields, tile drainage from pasture |
| In-Situ Water Qu | | Ground Water Indicators |
| WT (°C): 14'C AT(°C): | -16:C | — Watercress II Bank Seepage II |
| | stem): Na | Iron Staining 🎞 None |
| | | Subbling D Other |
| | | Abundant Jewelne Rd |
| Notes: Stream thru | cultural wood | land and mardow march whom water- |
| table at/ | hear surface- | -> actor = golden whi jewslused |
| | Stream | Morphology |
| Site Length (m): 70 m | | Bank Stability: |
| Channel Dimensions | | Stable Slightly Moderately Unetable unstable unstable |
| | nkfull Width 1.1 m | Left Bank D D D |
| Mean Wetted 3 cm Mean Ba | nkful Depth 0.25 M | <u> </u> |
| Flow Description: Internate | nt, Swall shall | Ion braided channel thron 40m wide |
| shallow | valley between | comfields. Valley buttom mandow monest |
| Notes: w cumof | y of mid-yed | comfields. Valley buttom meadow monst black ash trees. First order trib |
| | | |

Navas Mareta Adjusta

| AECOM | | | | | | Page 2 of 4 |
|---|-----------------|--------------------|-----------|------------------------|---------------------|---|
| | | | ······ | Stream Morph | ology (copil) | nued) |
| Substrate (< = >) Be - Boulder Co - Cobate Gr - Gravel Sa - Sand Si - Sill CI - Clay MK-Muck DT-Detritus Other | Description | s Si | • | aream morph | Notes: | Morphotogical Structure (%) Pool Riffle Run Flat 30/ 101/ 161. 361. |
| <u> </u> | | ···· | | Hi | bitat | |
| Instream Cover (| %) | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: |
| | Ma | Na | nla | n/n | 10% | |
| *Aquatic Vegetat | ion Types Pi | resent (alga Ma | e, submer | gent, emergen | t etc.) | |
| Canopy Cover (% 109-90% 99-60% 60-30% | ciosed cov | 30-1% 0% | | Grasses | 807. | Shrubs Man-made structures Other |
| Notes: | | Cham | al defina | fenition of overs | variable land br | (mostly defined to some unquely raided sections) |
| Obatro | etions to Fi | ah Passage | | | Drein | nage Features within Study Area |
| | | - | | 1 | | |
| No Obstructions Natural Description: | المحود | Man-Made | | 1 | | opography within 120 m buffer area: qualtural exopland (corn) |
| Terrestrial featur | | (Ves) | No | Cultu | re (W00 | odland (pine plantatión) |
| Terrestrial Recon F | orm Filled out | Yes | (No) | | | |

| AECOM | | | Page 3 of 4 |
|----------------|----------------------------------|--------------------|---|
| her General Co | mmenta Regarding the Study Area: | | |
| | Nο | fish observed | • |
| | | | · · · · · · · · · · · · · · · · · · · |
| | | | |
| | | | |
| · | | Photo log | |
| Picture# | Description | Picture # | Description |
| 931 | General view of step all | <u> </u> | |
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932 933 Channel throw sneedom mossile aster=galder and = geneloweed
934-935 Rop. channel at us and.

Augustument densydis

| AECOM | , | | | | 4 of 4 |
|----------------|------------|------------------------------------|---------------------|------|--|
| ·· | _ | | Watercourse Skétch | cla | - 1 |
| tudy Area: | Jericho | Goshan Bluewater Lar | nd Parcell BLW 1079 | Sito | C34 |
| | | | · | | |
| 1 | | Pavillin Rd | 4 × ± | Ñ | LEGEND Tot depon(cm) for with Reful Reful Pool |
| <u> </u> | | | | | ■ Resect@ar Fine Substrate |
| | | | ٩ | · | ### Gravel Sucremble oCloseD Cobbin fileusday ** thebuts |
| Ì | l | | | | CT Cottail |
| | | frest/cultural woodlandsplantation | , 634 | | SWFV SubmerpFlost Veg EV Emergent W W45-Cess |
| ما سائده | 7 | | | | Fe con Swining |
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| orizontal View | of Channel | | • | | |
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| AECOM | | | | | Page 1 of 4 | ٠ |
|--------------------------------------|--|--------------------|--|---------------|--------------------------------|-----------|
| AECOM | | | Fleid Crey | <u>y: N</u> . | Hodges, A. | Stablin |
| | | | al information | Site | *** | |
| Study Area: | | Suswa)er Land Parc | | Türbine# | _ ビグラ | |
| Date: Sept | 28/11 s | tart time: 10 | 45 am | End Time: | 11:40 a | inna |
| Weather Conditions | Partly cloudy | , 14'L | Fleid Notes By: | N.Hod | ges | |
| | , | | e Location | | · · · · · · | |
| | Access from | Pavillim R | 7 approx. 500 m | n east | of Bran | son Ln. |
| | · · · · · · · · · · · · · · · · · · · | UYM | Co-ordinates | | | • |
| Easting: | ! | lorthing: | | Description | n: | |
| Easting: | ! | Northing: | ···· | Description | <u> </u> | |
| Easting: | | lorthing: | | Description | n: | |
| Easting: | | forthing: | | Description | | |
| Surrour | ding Landuse/Polistic | n Sources | | Type of W | etercourse | |
| Residential Agriculture Forest | Meadow Welland Livestock | | Intermittent Permanent Ephemeral | ١ كينيا | Channelized Vatural Channel | |
| Other: | | | | | | |
| | Bank seepage | | epages, overland flow) | | | |
| | GB battonies | dead | | | | |
| | în-Situ Water Qualit | у | <u> </u> | Ground Wat | er Indicators | |
| wτ (°C): /4 'c | AT(°C): | 1500 | Watercres | .a 12 | Bank Seepage | |
| | | , | Iron Stain | | None | |
| pH: ^/~_ | | | Bubbling | | Other | |
| Water Clarity: | Clear El | Turbid 🛄 | | | | |
| Notes: | Wd not recor | hed. One | . Small watercres Jewelweed obse | is plant | | |
| | | Stree | m Morphology | · · · | | · · · · · |
| Site Length (m): / | 50m | | Bank Stability: | | | |
| | | | Diet. | Slightly | Moderately ,, | |
| Channel Dimension | <u>. </u> | | Stable | unstable | unstable | nstable |
| Mean Wetted Width (m): 3 | Sn. (m); | All Width 8.05 A | Left Bank | | ഥ | Ħ |
| Mean Wetted Depth (m): | /とル Mean Bankfi (m): | al Depth 0.7 m | Right Sank 🔲 | | <u> </u> | M |
| Flow Description: | . Second or | der stream | . Highly sih | ta old (| morphologi | ្ច ស |
| | evidence | of high floor | . Highly sin | Atomal | bark er | ssian t |
| Notes: | downculti | ig). Velo | city 3 sec/m i | n riff | le. | |
| | | ,, | <u>.</u> | | | |
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| AECOM | | | | | | | | Page 2 of 4 | |
|---|-----------------|---|------------|------------------------|----------------------|------------------|-------------------|--------------------------|-----------------|
| | <u></u> _ | | | Stream Morph | afogy foonbl | nued) | | | |
| Substrate (< = >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Gl - Clay MK-Muck DT-Detritus Other | Descriptio | n KR>Bæ | | ar aun morbie | Notes: | Pool 30% | 3o% | Run 30% | /6) Flat /0 //. |
| | | | | Ha | l bitat | | | | |
| Imstream Cover (| %) | | | *14 | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Sank | | | Other: | |
| | 10% | 30% | 451 | Na | 15% | | | | |
| ^Aquatic Vegetat | ton Types P | resent (alga | e, submer | gent, emergen | l etc.) | | | | |
| | .0 | n/a | Ł | | | | | | |
| Canopy Cover (% | | | | Types of Cov | ar (% acusa) | | | | |
| 100-90% | 11 CO | 30-1% | | I . | 100% | | | Man-made | |
| 90-60% 60-30% | | 0% | ال | | | | | structures Other | |
| Notes: | | Dar | ters ob | served r | 7 | | | | |
| | | | | | | | | | |
| Obatro | ictions to Fi | ah Passage | | <u> </u> | Drain | ge Featur | es within Si | hidy Area | |
| No Obstructions Natural Description: | ä | Man-Made | | Observations (L | Colling | agnic | | buffer area: lameds (| (crops, |
| | | . , , , , , , , , , , , , , , , , , , , | | | pasfo | | | / | |
| Terrestrial featur | | Yes Yes | No (Ng) | Matri To oc | a decre cessional | luons : Luons | forest nal pur | (maple: | brech) |

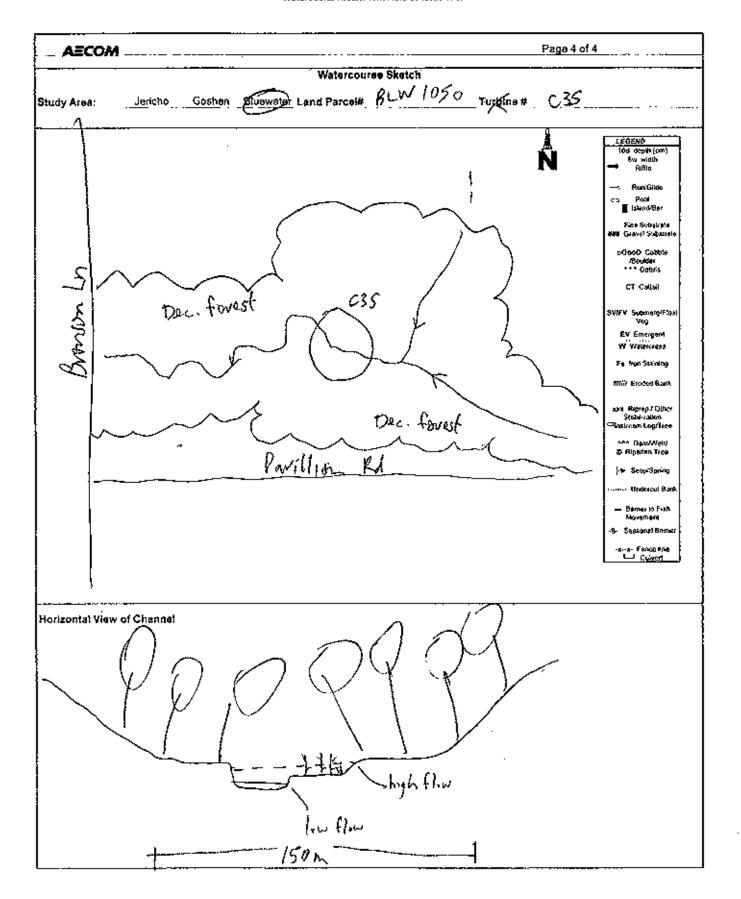
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Page 3 of 4

Other General Comments Regarding the Study Area:

High quality hobitat com Imaphology.

| | | P | toto log | |
|-------------------|----------|-------------------|--|-------------|
| Picture # | <u> </u> | Description | Picture# | Description |
| 936, | Rea. | morphology, flow | | |
| 72 6 , | 1.1 | , ign | | |
| 938 | | | | |
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| D 2-2 | Ren | substrate | | |
| 937 | 1 17 . | 34.031 - 11 | | |
| | _ | pool/woody debris | | |
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| AECOM | | | Page 1 ol 4 | SL 113 |
|--|--------------|--|--|----------|
| | General Info | Field Crew: | N. Hodges, A. | Theply |
| Study Area: Jericho Goshen Bluewate | | <i>Ш</i> 1087 _ т | uthfra# C19 | |
| · | 9: 11:30 gas | | nd Time: | |
| Vesther Conditions: Partly doudy, 2 | | ld Notes By: N. A | | |
| | Site Loca | illon | | |
| Access from Bron | | | with of Blue Bl | uff RL. |
| | UTM Co-ore | | | |
| Easting: Northing | | | | |
| | | | | |
| • | | D: | | |
| Easting: Northing Surrounding Landuse/Pollution Source | <u>e</u> | | ascription: ype of Walercourse | ٠. |
| Residential | _ t pastur | Intermittent Permanent Ephemeral | Channelized Natural Channe | |
| in-Situ Water Quality | | . Gro | ound Water Indicators | · |
| WT (°C): 14°C AT(°C): 20°C | | Watercress | ☐ Bank Seepage | 122 |
| pH: Na Cond (s/cm): N | In: | Iron Staining | | |
| Water Clarity: Clear 🖾 Turbid | 12 | Bubbling | Cther | <u></u> |
| Notes: Wo not recorded | | | | |
| GPS battomes of | lend | | | |
| | Stream More | | | |
| Site Length (m): 300 h | Ba | nk Stability: | | |
| Change Dimensions | | | Silghtly Moderately Instable unstable | Unatable |
| Channel Dimensions Mean Wetted Mean Bankfull Width Width (m): 0.12m/r (m): | 12.4m 1 | eft Bank 🖽 🖰 | instable (instable | Ø |
| Mean Wetted / / Mean Bankful Depth | 0.65 m Ris | ght Bank 🚨 | ០ ដ | ta |
| Flow Description: First order stream | n. Am re | locity 4 sect | n on viffle | |
| | | | | |
| Noles: | | | | |
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| AECOM | | | | | | | | Page 2 of 4 | | |
|--|-----------------|-------------|------------|------------------------|------------------|------------|---------------|---------------------|-----|-------------|
| | | | | Negama March | tanulas II | nerad) | | ···· | | |
| Substrate (< = >) Bq - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Cl - Clay MK-Marck DT-Detritus Other | Descriptio | n a>Co> | | Stream Morpho | Notes: | Paol 45/. | Riffle 151 | SINUOU nandow | 30/ | nel kets |
| | | | | Ня | bliat | | | | | |
| Instream Cover (| %1 | | | | ·••• | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Sank | | | Other: | | |
| | 5% | 2/ | 25% | n/n | 10% | | | | | |
| *Aquatic Vegetat | lon Types P | V | e, sübmer | gent, emergen | t etc.) | | | | | |
| Canopy Cover (% | | | ——— | Types of Cov | | | | Man-made | ** | |
| 100-90% 90-60% 8 0-30% | | 30-1% 0% | | Trees Grasses | 45.). 10.]. | Shruba | 45/. | structures Other | | |
| Notes: Obstru | ctions to Fi | sh Passags | | | Đ(alo. | age Fealur | es within 5 | tudy Area | | |
| No Obstructions Natural | 디 | Man-Made | Ш | Observations | of Land To | pography v | within 120 a | n buffer area: | | |
| Description: | | | | : : | Rolling | y ran | vh/p | astune la | end | |
| Terrestrial featur | | | No (No) | Cut | tum n | reador | ~/#Lic | kat | | |

| AECOA | 1 | Page 3 of 4 | | | | | |
|---------------|---|-------------|---------------------------------------|--|--|--|--|
| er General C | omments Regarding the Study Area: | | | | | | |
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| | | Photo log | · · · · · · · · · · · · · · · · · · · | | | | |
| Picture # | Description | Picture# | Description | | | | |
| ¥(- | Rep. channel dis end | i t | | | | | |
| 144 | The second second | 1 | | | | | |
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| 45 . | Rep. substrate |] | | | | | |
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| | Par char I How should | | | | | | |
| 46 | Rep. channel thru shrub thinket mid- reach | | | | | | |
| | Truped Trips | + | | | | | |
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| AECOM | Page 4 of 4 | |
|-----------------|--|--|
| <u> </u> | Watercourse Sketch | |
| Study Area: | Jencho Goshen Bluewater Land Parcell BLW 1087 Turpine # 5142 C | 9 |
| | Cryptal Springs Rd | LEGENO TOS dopticons) Biw widos Birt a RowCriss Poel Intend/Bur Fore Substrate Rew General Substrate ODOCO Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Ger Cobble /Poel/Cobble
| Horizontal View | of Channel | |
| • | thicket/meador meadony thicket postave | |
| ! | 50-70m | |

| AECOM | E | eld Craw: N. Halyus A Stublin |
|--|----------------------------------|--|
| | General Information | - 4.1 |
| | ater Land Parcet# BLW 106 | <u> 5 турья ж Site C21</u> |
| Date: Sep+2-8/11 Start ti | me: 130pm | End Time: |
| Weather Conditions: | Field Notes By | |
| Sunny 20'4 | | N. Hodges |
| | Site Location | |
| Access from by | ronson In approx. | 500m South of Crystal Spring |
| | UTM Co-ordinates | |
| Easting: North | ng: | Description: |
| Surrounding Landuae/Pollution So | urces | Type of Watercquise |
| Residential Meadow Agriculture Wetland | Per | manent |
| Forest Livestock C | . · Epi | nemeral EII |
| Notes: (include any inputs into the system i.e. t | ile drainage, seapages, overland | flow) |
| l | | , |
| " (100/201 | nd flow, suppage | |
| | | |
| Iл-Situ Water Quality | ····· | Ground Water Indicators |
| WT (°C): 14'4 AT(°C): 12 | w (س | atercress 🖾 Bank Seepage 🔯 |
| pH: Na Cond(slcm): | | on Staining 🖂 None 🔲 |
| | ' B | ubbling 🗀 Other 🛅 |
| Water Clarity: Clear D Turb | id <u>U</u> | |
| Notes: Floodplain Sa | turated; sensitive t | ern abundant |
| will not recon | ded; GPS batterns. | dand |
| 0.000 | Stream Morphology | |
| Site Length (m): 400m | Bank Stability | : |
| Channel Clausedone | | Stable Slightly Moderately Unatable unstable |
| Channel Dimensions Mean Wetted / / Mean Bankfull Wil | th 4/4 Left Bank | |
| Width (m): /. 6 / (m): | th 4.1 m Left Bank | |
| Mean Wetted O.12-A Mean Bankful Dep | o.55 m Right Bank | |
| Flow Description: Gist order trib. | Flow velocity 65/ | n atriffle |
| | | : |
| . | | |
| Notes: You cyprinids of | Served 121" A | Idult apprinds 1818 |
| 1 | | Oh. A CHIX |
| Red algae obser | VEM | |

мары манын (61550М)

| Description Sa> | , , Co ≈ G | | Stream Morph | ology (contin | | lorphologic Riffle | a) Structure (| %) Flat |
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| - | | v≻Bo. | <u>.</u> . | | | | | |
| 5a> | · Co = G | v>Bo | | | ŀ | | | |
|)a> | > Co ? G | v≻Bo. | - | | 30% | 30% | 30% | 10% |
| | | | >21, | Notes: | 20% | 30/. | 307. | 1,07. |
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| | | | He | bitat | | | | <u>-</u> - |
| | | | ı | | | | | |
| Woody Debris | Bouldera | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| 30% | 5% | 35% | Na | 15% | | | | |
| on Typas Pr | resent (alga- | e, submen | gent, emergen | t etc.) | • | | | |
| | | | | | | | | |
| | Ked o | ilgna c | bserved | sporadi | callu | | | |
| 14 | | • | | • | y | | | |
| closed cove | ar): | | Types of Cov | er (% cover) | | • | | |
| T2 | 30-1% | | Trees | 100% | Shrubs | | Man-made | |
| | 0% | | Grasses | | Herbaceo | is | Other | |
| | | | <u> </u> | | | | | |
| tions to Fja | in Passage | | | Dreina | ige Featur | os within St | udy Aren | |
| | Man-Made | | Observations | of Land Top | ography w | Athin 120 m | buffer area: | |
| | | | ! | flat to | rolliv | n agri | cn lture | (hay) |
| s Present | Yes | No | | | | Fovest | | |
| | closed cow | Woody Boulders 30% 5% on Types Present (algae Red closed cover): 30-1% | Woody Boulders Combie 30% 5% 35% on Types Present (algae, submers Led algae closed cover): 30-1% 0% 1 | Woody Boulders Combie Aquatic Vegetation* 30% 5% 35% A/A on Types Present (algae, submergent, emergent Algae Observed closed cover): Types of Cov 30-1% Trees Grasses Man-Made Deservations | Woody Boulders Cobbie Aquatic Vegetation Bank 30% 5% 35% An 15%. On Types Present (algae, submergent, emergent etc.) Led algae Observed Sporadi closed cover): Types of Cover (% cover) Trees 100%. Grasses Man-Made Disservations of Land Top | Woody Debris Boulders Cobble Aquatic Vegetation Bank 30% 5% 35% A/A 15% on Types Present (algae, submergent, emergent etc.) Red algae Observed Spoyadically closed cover): Types of Cover (% cover) Trees 100% Shrubs Grasses Herbaceon Advantic Vegetations of Land Topography with the country of the co | Woody Debris Boulders Cobble Vegetation' Undercut Bank 30% 5% 3.5% An /5% on Types Present (algae, submergent, emergent etc.) Red algae Observed Sporadically closed cover): Types of Cover (% cover) Trees /00% Shrubs Grasses Herbaceous Drainage Features within St Man-Made Deservations of Land Topography within 120 m | Woody Boulders Cobble Vegetation Undercut Bank Other: 30/. 51. 351. N/A 151. Don Types Present (algae, submergent, emergent etc.) Led algae Observed Sparadically closed cover): Types of Cover (% cover) Trees 1907. Strubs Man-made structures Other Chiona to Fish Passage Drainage Features within Study Areis |

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| AZCOM There General Comments Regarding the Study Area: Pleture # Description Pleture # Description 147,948 Rep. channel, flow 152,955 149 Rep. woody debris cover 150 Unidentified substance 151 Rep. bank seepage 153 Rep. substrate 154 Minnows | | | |
|--|-----------------------------------|-------------|-------------|
| Other General Co | omments Regarding the Study Area: | | |
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| | _ P | noto log | |
| Picture# | Description | Ptoture # | Description |
| 752,955 | · Kep. channel, flow | | |
| _ | Rep. woody debris cover | | |
| 950 | Unidentified Substance | | |
| 151 | Rep. bank seepage | | APR 11.8 |
| 953 | Rep. substrate | <u> </u> | |
| 954_ | Minnows | | |
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| | | | | | | Page 4 of 4 | |
|-----------|---------------------------------|----------|--|--|--|--|---|
| | | . | Watercon | rse Sketch | | | |
| Jericho | Goshen | Bluewate | and Parcel# | BLW 1065 | Turbine # | | 1 |
| | ., | • | - | | | N . | CEGEND 10d depor (con) 5th width Rulfo Rundido Pool Intended of Fire Substrate Obood Cobbin IBourbor CT Callan SVIFY Sob-boy/Fluid Weg EV Emergent W Wegnerass Fe Inte Steining WW Francess Fe Inte Steining Will Ended Back Ext. Ripuse / Other Stein read Convenue Interpretation Convenue Interpretation Undercot Back - Dander to First Movement Sessonal Back - Dander to First Movement Sessonal Back - Sessonal Back - Sessonal Back - Carrier Sessonal Back - Carrier - Sessonal Back - Carrier - Sessonal Back - Carrier - Sessonal Back - Carrier - Carrier - Carrier - Carrier - Carrier |
| d Channel |) ₆ (<u>[-</u>] | | | MQ hija flo | | ay field | |
| | | Show | Crystal Shrubthick decre Channel Channel | Crystal Springs R Should thicket / deciduous for cell (Channel (Channel | Crystal Springs Rol Shrubthicket/ deciduous forest Cal Channel Channel | Crystal Springs Rol Shoubthicket/ decodurous forest Channel Channel | Shrubthicket/ forest decodurans forest (Channel Hay field |

| AECOM | | Page 1 of 4 |
|------------------------|--|---------------------------------------|
| | | Field Crow: N. Hidges, A. Heblin |
| Study Assau Jerio | | il information Turbine # Site C25 |
| Study Area. | | _ |
| | Start time: 91 00 | |
| Neather Conditions: | Commercial 12:1 | Field Notes By: |
| | Summy, calm 12°C | N. Hodges |
| | Sita | Location |
| | Acres Com Contracted | In approx. I kn west of Babylon Ln. |
| | March Ham Christian C | se opposit flor is a fire |
| | UTM C | Co-ordinales |
| C4i | | |
| | | Description: |
| Easting: | Northing: | Description: |
| Zasting: | Northing: | Description: |
| Easting: | Northing: | Description: |
| announcin | g Landuse/Poliulion Sources | Type of Watercourse |
| Residential 🛄 | Meadow [] Wetland [] | ? Intermittent |
| Forest 🗖 | Wetland 🛄 | |
| ther: | | Ephemerai Agricultural dvalu |
| | its into the system i.e. tile drainage, see | |
| โ | The "dvallage from 2 con | - field immediately adjacent to drawn |
| | | |
| | 985 malfunctioning | |
| In | -Situ Water Quality | Ground Weter Indicators |
| MT (°C): 12°C | AT(°C): /2.C | Watercress 127 Bank Seepage [1] |
| | | iron Staining II None II |
| эн: | Cond (slcm): | Bubbling Chher |
| Water Clarity: Cler | ar . 🖾 Turbid 🛄 | |
| łotes: | £ P. 1 | |
| 10186. | Watercriss noted to west | end of reach 40m dls of tile drain |
| | | |
| | THAT AND AND THE PROPERTY OF T | |
| 106 | | i Morphology |
| Site Length (m): 600 | /h., | Bank Stability: |
| | • | Stable Stightly Moderately Unetable |
| Channel Dimensions | - In | unstable unstable |
| Mean Wetted 3.14 | Mean Bankfull Width 3.85 | Left Sank 11 1 |
| ·· | | Stohi Bank Ø 🖸 🖸 |
| Mean Wetted 0.20 | Mean Bankful Bepth 0.6/ | Right Bank 20 13 13 13 |
| | | |
| | flow relacity 6 s/m, | Flow possibly intermittent, |
| | • | - v |
| Notes: | | |
| <u>ن.</u> | Tain is amount 3 makes | . Observed flow likely augmorted by |
| , | | |
| | rain vin tile dances. | The drains flowing well. |
| | THE DOWNINGS | though well. |

| AECOM | | | | | | | | Page 2 of | 14 |
|--|-----------------|--|--------------|--|--------------------------------|--|---------------------------------------|----------------------|-----------------------|
| | | | ¢ | Streem Morpho | logy (contin | ued) | | | • |
| Substrate (< = >) Bo - Bookler Co - Cobble Gr - Gravel Sa - Saed Si - Sia CI - Clay MK-Muck OT-Detritus Other | Description | s; | • | | Noles: Stv | Pool | Riffie | drain | Flat |
| | | | | Ha | ibi ta1 | | | | |
| Instruam Cover (| %} | - | | · · · · · · · · · · · · · · · · · · · | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | · · · · · · · · · · · · · · · · · · · | Olher: | |
| | - | _ | _ | 90% | 10% | | | | |
| | | | | | unated b | | , | | |
| Canopy Cover (% 100-90% | 14 | 30-1% | | Types of Cov | er (% cover) | Shruba | | Man-n struct | nade ures |
| 90-80% 80-30% | | | | Types of Cov | er (% cover) | Shruba | | Man-n struct | nad e |
| 100-90% 90-80% | 157 CJ | 30-1% 0% | ខា | Types of Cov | er (% covet) | Shruba | | Man-n struct | nade ures |
| 109-96% 90-86% 80-30% Notes: | 157 CJ | 30-1% 0% Cham | ខា | Types of Cov Trees Grasses | er (% covet) //00% | Shruba | us | Man-n struct | nade ures uther |
| 100-90% 90-86% 80-30% Notes: | EU CO | 30-1% 0% Cham | ខា | Types of Cov Trees Grasses Ag., olv | Praince of Land Top | Shruba Herbaceo age Featur bography | us es within S vithin 120 | Man-n struct O | nade ures lther |
| 100-90% 90-86% 80-30% Notes: Obstructions | Ections to F | 30-1% 0% Clyston sh Passage Man-Made | eo Whized | Types of Cov Trees Grasses Ag., olv | er (% cover) 100% air Drain | Shruba Herbaceo age Featur bography | us es within S vithin 120 | Man-n struct O | nade ures lther |
| 100-90% 90-86% 80-30% Notes: Obstructions Natural | Ections to F | 30-1% 0% Cham sh Passage | eo Whized | Types of Cov Trees Grasses Ag., olv | Praince of Land Top | Shruba Herbaceo age Featur bography | us es within S vithin 120 | Man-n struct O | nade ures lther |

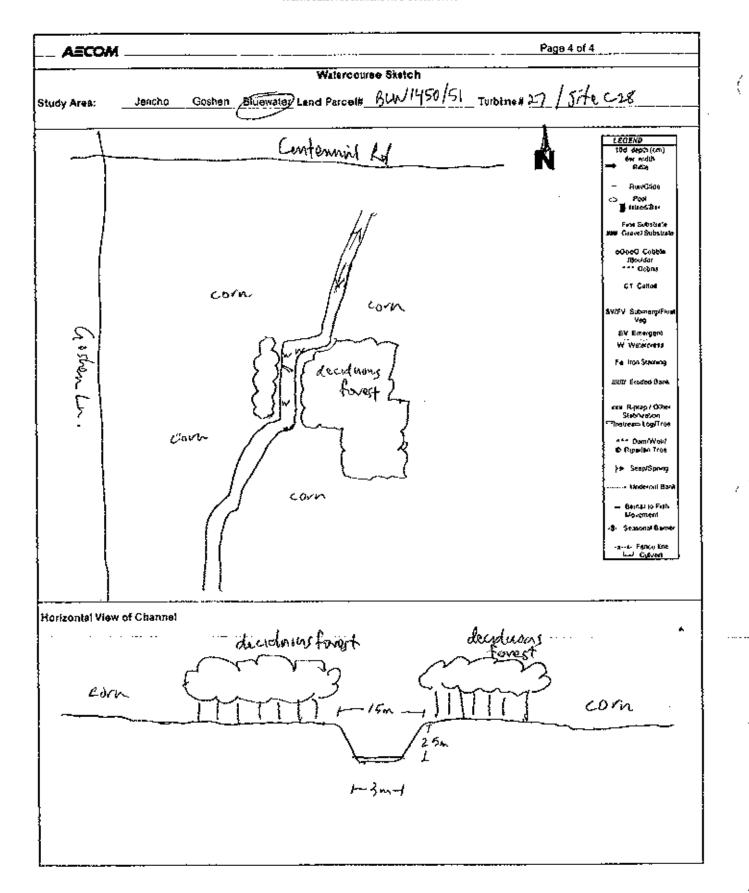
| AECOM | | Page 3 of 4 | | | | | | |
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| er General Cor | mments Regarding the Study Area: | | | | | | | |
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| Picture# | Ph Description | oto log Picture # | Description | | | | | |
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| 219 | View offs (west end of | | \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | | | | | |
| | yeach) | <u> </u> | | | | | | |
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| 220 | View of west end of veach) | | | | | | | |
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| Study Area: Jencho Goshan Bluewater Lend Parcell 1042 Turphred 5, fe C25 Alcid Foreget Contential Rd Corn Alcid Foreget Corn Alcid Foreget Corn | AECOM | 1 | | | | | age 4 of 4 | |
|--|-----------------|--|---------------------|--------------------------|------------------------|------------|---------------|--|
| Continued Rd Corn | | | | Watercourse Sketo | | | | |
| Average Com Corn | Study Area: | Jencho9 | Soshen Bluewater Le | end Parcet# <u>/0</u> 43 | | Turbline# | <u>5,/e</u> c | -25 |
| corn 1-12m-1 corn 3-oceasional shouls | | tile drain | Corn | EVY EV | | | B spilar | 6w w.231 Raille Reundfiste Poss Interné@ar Fine Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Substitute Gravel Gravel Gravel Gravel Gravel Gravel Gravel Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel And Gaminy Gravel Barrier to Field Adversional Barrier Gravel |
| Some 12m-1 3 occasional shrubs | Horizontal Viev | Area: Jencho Goshen Bluewater Lend Parcelli 1949 Tushina Sile C25 Reid Continued Rd Cotton Rd Co | | | | | | |
| 1-3m-1 | | | corn 2. | 5 | -1 3 - 00 1 reed | tasional s | | minust vag |

| AECOM | | | 71-1 | | | age 1 of 4 (25) <u>A.</u> | C4.6/6. |
|--|--------------------------------|------------------|----------------------|-------------|-------------------|-------------------------------|----------|
| | | Generalii | nformation | | v | | |
| Study Area: | | ler Land Parcel# | | | | 5, te E28 | |
| Date: 02+5 | / () Start tir | ne: 10710 d | | End | i Time: | <u> 10;45am</u> | |
| Veather Conditions: | Sunny, culm 1 | 36 | Field Notes By: | N.H | odges | | |
| | Access from G | | ocation Wax, 800m | South | .f (| Centermi | n Rl |
| | | UTM Co | ordinates | | | | |
| Ęasting: | Northin | 1 g: | | Des | cription | | |
| Easting: | Northli | ng: | | Des | criptio <u>n:</u> | | |
| Easting: | Northle | ng:, , | | Des | eription | | ~.·· |
| Easting: | Northly | 1g: | | | erigtion: | | |
| | Ing Landuse/Pollution Sou | 17048 | | | | ercourse | |
| Residential Agriculture Forest Other: | Meadow U Wetland U Livestock U | | Perm | | ==:/ | Channelized (tural Channel | |
| | GPS multung | timing. | | | | flan, rindicators | · |
| VT (°C): 11'4 | AT(°C): /4' | <u> </u> | Wai | tercress | 12 | Sank Seepage | · a |
| | Cond (e/cm): | | fror | Steining | | lone | |
| ЭН; ————— | | | But | abling | | Olher | |
| Water Clarity: | Clear Turbi | d 🎞 | <u> </u> <u></u> | | | | |
| Notes: | Scattered | l watercress | throughou | ot trac | ۷. | <u></u> | |
| ille Length (m): | 400 m | | Bank Stability: | | | | |
| | | | | sable St | lightly | Moderately | Unstable |
| Channel Dimensions | | | \ | table un | stable | unstable | |
| Mean Wetted Nidth (m): 2 | . 59 Mean Bankfull Wid | 3.97 | Left Bank | CT _ | | | |
| fean Wetted Depth (m): | .24 Mean Bankful Dep (m): | th 0.75 | Right Bank | 1 11 | | EI . | |
| Flow Description: | Flow Mocity | | | | | e · | |
| Notes: | Blue heron obs | | annel -3 | * potent | hally | teeding. | |
| | No fish obse | word i | | | | | |

| AECOM | | | | | | | | Pag | B 2 of 4 | | |
|--|-----------------|--------------|----------|----------------------------|------------------|------------|-------------------------|-------|--------------------------|---------|--------------|
| . | | | | Streem Marph | ology (contit | (ued): | | | | | |
| Bo · Bourder Co · Cobble Gr · Grevel Sa · Sand Si · Sill CI · Clay MK-Muck DT · Detrilus Other | Description | n = 5; | | • | Notes: | Post | norpholog Riffle | | Run | /6 | Plat 10/ |
| | | | · · · | Н | ibitat | | - | | <u>-</u> . | | |
| nstream Cover (| %} ! | | | T | | | | | | | 1 |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Oth | 8f: | | |
| | 5% | ا ر | _ | 154. | 10% | | | | | | |
| Canopy Cover (% 108-96% 90-66% | .44 | , | | Types of Cov Trees Grasses | | Shraba | 15% | N | lan-ma Iructur Oti | 65 | |
| 60-30% | 口 | | | | , , | | | | | | |
| łojes: | | | • | st on bo y gulders | adjustes | 200 | | gra | ريور | معتك را | lges, |
| Obstra | actions to Fi | sh Passage | • | <u> </u> | Orața | ige Featur | es within | Study | Azes | | |
| No Obëtraëtions Natural | <u> </u> | Man-Made | | Observations | of Land To | ography i | Within 720 | m but | fér ar e | a: | |
| Description: | None | olosona | d | | Flat ti | roller | <i>"</i> | | | | |
| Terrentrizi fantu Terrestrial Recon F | | | No No | | | | <u> </u> | | | • | |

| | AECOM | 1 | | Page 3 of 4 | |
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| | Other General C | omments Regarding the Study Area: | | | |
| New / | | | | | |
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| | | Pho | oto log | | |
| | Picture# | Dascription | Picture# | Description | l |
| | 221 | heran north end if reach | | | |
| | 222/ | | | | |
| | 224 | forest adjacent to duning, north and of seach tile drainsivis and veg. substrate south and of reach | | | |
| <i>y</i> . | 225/226 | tile drain/ivis and reg. substrate south end of reach | | · · · · · · · · · · · · · · · · · · · | |
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| AECOM | | | | Fi | eld Crew: | NH | Page 1 of 4 | tebla: |
|--|-------------------|-----------------------------|--------------------------|------------------------------|-------------------------------|----------------------|--------------------------------|---------|
| | | | | ntermation | | | ٠, | 1-4-18- |
| Study Area: | Jericho Gosher | Start time: | Land Parce# 11:00 ﻣﯩﺒ | <u>BLW 1452</u> m | ·T | urbine # nd Time: | <u>28/C29</u> | |
| Veather Condition | | | | Field Notes B | | orlges | | |
| | East sits. | of Gosto | site t | ocation approx (b | km 500 | th of | Cantumnia | i Rd. |
| | | | ОТМ С о | ordinates | | • | | |
| <u>Easting:</u> | | Northing: | | | D | escriptio | on: | |
| Easting | | Northing: | | | D | escriptio | n: | |
| Easting: | | Northing: | | | D | escriptio | n: | |
| Easting: | unding Lenduse/Po | Northing: listion Source | | | <u>D</u> | escription | n; Intercourse | |
| Residential Agriculture Forest Other: | Meade Wetla | ow 🗒 | | Par | rmittent manent hemeral | | Channelized Natural Channel | |
| MT (0C)- | In-Situ Water Q | uality | | | Gre ateroress | DUNG Wa | ter Indicators Bank Seepage | Ľ |
| Mt (,c): | AT(°C): | | $\overline{}$ | 1 | | _ | Bank Seepage | |
| pH: | [Cond (| | |] | on Stainin ubbling | | None Other | |
| Water Clarity: | Clear 🖂 | Turbid | | | | | | |
| Notes: | | | | | | | | |
| Site Length (m): | | | Stream | Norphology Bank Stability | . / | | | |
| Channel <u>Dimensio</u> | DDS | | | | | Slightly unatable | Moderately _{(f} | natable |
| Mean Wetted Width (m): | Mean Ba (m): | ankfull Width | | Left Bank | | À | C | Ш |
| Mean Wetted Depth (m): | Mean Ba (m): | ankful Depth | | Right Bank | | □ ` | | |
| Flow Description: | - 17 - | See | Conne | sels on | ß | <u>-</u> - | | |
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| | | | 5 | Stream Morpho | ology (contin | uedì | | | |
| | | | ` | otream morph | | | | | Dr. h |
| jubstrate (< = >) | | _ | | | | | | il Structure (| |
| Bo - Boulder | Description | п | | | | Pool | Riffle | Run | Flat |
| Co - Cobble 🐰 Gr - Graval | | | | | | | | | |
| Sa - Sand | 1. | | | | | | | | <u> </u> |
| Si - Silt | | | | | Notes: | | <u>. </u> | | 1 |
| CI - Clay | `. | | | | AUIES. | | | | |
| MK-Muck | 14. | | | | [| | | | |
| DT-Detritus | | | | | 1 | | | | |
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| | | | | | l . | | - | | |
| nstream Cover (| 1961 | | | He | bitat | | | | |
| | Woody | | 0-6-6- | Aquatic | Undercut | | | Other: | |
| None | Debris | Boulders | Cobble | Vegetation* | Benk | | | Other: | |
| | | · | | | | | | | |
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| | | | 1 | | | L, | | | |
| | | | | | | | | | |
| Canopy Cover (% | % closed cor | | | Types of Cov | er (% cover) | | | | |
| 100-90% | | 30-1% | 17 | Trees | · \ | Shruba | | Man-made structures | |
| | ш | ۵% | וייו | Grasses | | Herbsceo | ·us | Other | |
| 90-60% | | | | 1 | | | | | |
| 90-60% 60-30% | ᆸ | | | 1 | | X | | | |
| 60-30% | _ | | | <u> </u> | | <u>X</u> | | | |
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| 80-30% Notes: | _ | ish Passage | | <u> </u> | Draine | ago Featu | es within St | udy Area | |
| 60-30% Notes: Obstru No Obstructions | uctions to Fi | lsh Passage Man-Made | | Observations | | | | | |
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| 60-30% Notes: Obstri No Obstructions Natural Oescription: | uctions to Fi | Man-Mad ∢ | No. | Observations | | | | | |

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Page 3 of 4

Other General Comments Regarding the Study Area:

Aquatic assessment completed on adjacent property (1451) on July 12th, 2011 by N.Hodges & N. Lower. Conditions on 100m reach of 1452 similar, i. data can be used for both. Additional photos taken Oct 5/11

| Photo log | | | | | | | | | |
|-----------|--|-----------|---|-------------|--|--|--|--|--|
| Picture# | Description | Picture # | | Description | | | | | |
| 727 | Overland flow to drain on, 1451 | | | | | | | | |
| 228/ | Concrete cultrent on 1457 | | | | | | | | |
| 230 | View of drain on 1452. | | | | | | | | |
| Z3\ | Rep. channel conditions 1452 | | | | | | | | |
| 232-235 | Panaramie sweep of 1452 on east sike of drain | | | | | | | | |
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Waterbodies Assessment Field Collection Form

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| CANADAGAGA | | | | | | 4. | age 1 of 3 |
|--|-----------------|---|--|-----------|-----------------------------|----------------|-------------|
| AECOM | | | | | Field Crew: | Hodger | N. Lawe |
| | | | General Information | 111110000 | 14 | | |
| Study Area: | Jericho | Goshen Bluewate | Land Parcel# | 109 | 54 1 | urbine # (a) | =1631 526 |
| UTM Co- | ordinates: | Easting: 045 | 1180 | orthing: | 481 | 5439 | 1. |
| 1.7 | | | e: 4:00 pm | | End Time: | | 30 pm |
| The state of the s | 12/2011 | Start time | | eld Notes | By | | 2-1000 |
| Veather Conditions: | Same | y, overzy 30 | B. | | NH | odjus | |
| Eut | side Bi | bylon Line, | Site Location | Cont | tonia! | RA. | |
| Surroundin | g Landuse/Po | Illution Sources | | Ty | pe of Watercou | rse | |
| Residential Agriculture Forest | | Meadow Wetland | Intermittent Permanent Ephemeral | | Channelized Natural Chan | nel 🖁 | |
| | Vo ova Berks | terral films. | observed g -> cont | | | | profit |
| 1 | n-Situ Water C | Quality | | | Ground Water | ndicators | |
| | | 12020 | Watercress | - | Bubbling | | None U |
| WT (°C) | | AT(°C) | Charles Control Mandage | | Bank Seepa | 🗆 | |
| рН | | Cond (us/cm) | Iron Staining | - | Dally Sechal | N. 1 | Other |
| Water Clarity: | Clear | | | visih | to pow | due to | veg |
| Notes: | V II | 1 | | | | | |
| Market I I I | Inster | DIGITION | | | | | |
| 0/7/ | WQ | due to | OCCESS. | 155 | L×3 | | |
| | | | Stream Morpholog | y: | | | |
| Site Length (m): | | | Bank Stability: | | | | |
| | | | | market. | Slightly | Moderately | Unstable |
| Channel Dimenions | | | | Stable | unstable | elderanu | Chistable |
| Mean Wetted Width | ~7 | Mean Bankfull Width (m): | Left Bank | 回 | | | |
| (m): | Tim | Width (m): | | | J | | |
| Mean Wetted Depth | 0.75m | Mean Bankful Depth (m): | Right Bank | Ø | | | |
| | | | | | | | |
| Notes: | 1m 0 | 5P culvert | | | | | |
| V. | 11 | 100000000000000000000000000000000000000 | | | | | |
| B | | | | | | | |
| | | | | | | | |
| | | Stre | am Morphology (co | ntinued) | | | |
| Substrate (< = >) | | | | | | al Structure (| %) Flat |
| Bo - Boulder Co - Cobble | Descriptio | n. | | Pool | Riffle | Run | 7.01 |
| Gr - Gravel | 1 | ar oli o | (| | | | 100 |
| Sa - Sand Si - Silt | - 51 | = e1 (est | | Notes: | | - | 1.07.00 |
| CI - Clay Other | | | * | NOTES: | | | |
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| | | | | <u> </u> | | | |

| None Woody Debris Boulders Cobble Vegetation Bank Other: S | | | | | Habitat | | |
|--|---|----------------------|---|----------------|---------------|----------------|-----------------------------|
| qualic Vagetation Types Present (signs, submergent, emergent etc.) Algary mopy Cover (% closed cover): 100-90% | stream Cover (%) | | | | | | |
| Acquatic Vegetation Types Present (#ijes, submargant, emergent etc.) Algae anopy Cover (% closed cover): 10-90% | None | 2200322 | Boulders | Cobble | | | Other: |
| Types of Cover (% closed cover): 100-90% | | | 5 | | 5 | | |
| 100-90% 30-1% Trees Shurbs Man-made structures 90-60% 0% 0% Grasses Herbaceous Other 60-30% 0% 0% Grasses Herbaceous Other Other Structures 100 m both sides the steep brenks Shurb the structures of the structur | Aquatic Vegetation | 100 | it (siges, submarg | ant, emergant | etc.) | | |
| 100-90% 30-1% Trees Shurbs Man-made structures 90-50% 0% 0% Grasses Herbaceous Other Cotes: | Canopy Cover (% c | losed cover): | | | Types of Cove | r (% cover) | |
| 99-60% 60-30% 60-30% Cotes: Common | 100-90% | | 30-1% | Ø | | | |
| Obstructions to Fish Passage Obstructions Man-Made Observations of Land Topography: Flat fable Land (wheat) both Sides Other Comments: Green frog heavy Lathord hand Deer fronts Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description | 90-60% | | 0% | | Grasses | VH | |
| Obstructions to Fish Passage No Obstructions Natural Man-Made Observations of Land Topography: Flat fible Land (wheat) hoth Sides Percrestrial features present: Yes No Other Comments: Green five Leavy Latbrief beard Deer fivels Photolog Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description | E-17-7, 5-75 | \Box | 2.204 | 15 | | | |
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| Observations Observations of Land Topography: Flat follo Land (wheat) both Sides Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description Picture # Description | | | | TALKE | 28W W | week in a | MASSEL |
| Description: Comments Photolog | | E-S | 11.77 | _ | | 170.W.1.12000 | DEPTH AND STREET AND STREET |
| Description: Flat table land (wheat) both sides Flat table land (wheat) both sides Other Comments: (green frog heard Catbord heard Deer fromks Photolog Picture # Description Picture # Description 1148 (green fromks) | | | Man-Made | | Observations | of Land Topogr | aphy: |
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| Other Comments: (green fring heard Latbord heard Dear frings Photolog Picture # Description Picture # Description 1148 Vin Suff (culver) | | | | | ELA | folia lana | |
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| Other Comments: (green fring heavel Cathorel heavel There frings Photolog Picture # Description Picture # Description 1148 Why Shell (culvert) 1147 Why shell (culvert) | Description: | , 🚨 | | | Flat | toble law | |
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| Cathrol heard Deer truly Photolog Picture # Description Picture # Description 1148 Why Suff (culvert) 1147 Why norts (culvert) | Description: Terrestrial features | present: | Yes | Coo | FIx+ | foble land | |
| Photolog Picture # Description Picture # Description 1148 Www Suff (culvert) 1147 with norts (culvert) | Terrestrial features | present: |] Yes | (No | FIx+ | foble land | |
| Photolog Picture # Description Picture # Description 1148 Www.Suff (culvert) 1147 with norts (culvert) | Terrestrial features | | ā. M | 0 | Flx+ | foble land | |
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| 1147 non north (entrant) | Terrestrial features | Gree | n frog bird he freeks | Leavel | Photolog | foble land | 1 (whent) both sides |
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| 11+15 CANUAL INTE | Terrestrial features Other Comments | Gree Cath Deen | n frig brod he frields Description | Leavel eval | Photolog | foble land | 1 (whent) both sides |
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| | Picture # | Cath Deer | n frig | Leavel eval | Photolog | follo land | 1 (whent) both sides |
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Waterbodies Assessment Field Collection Form

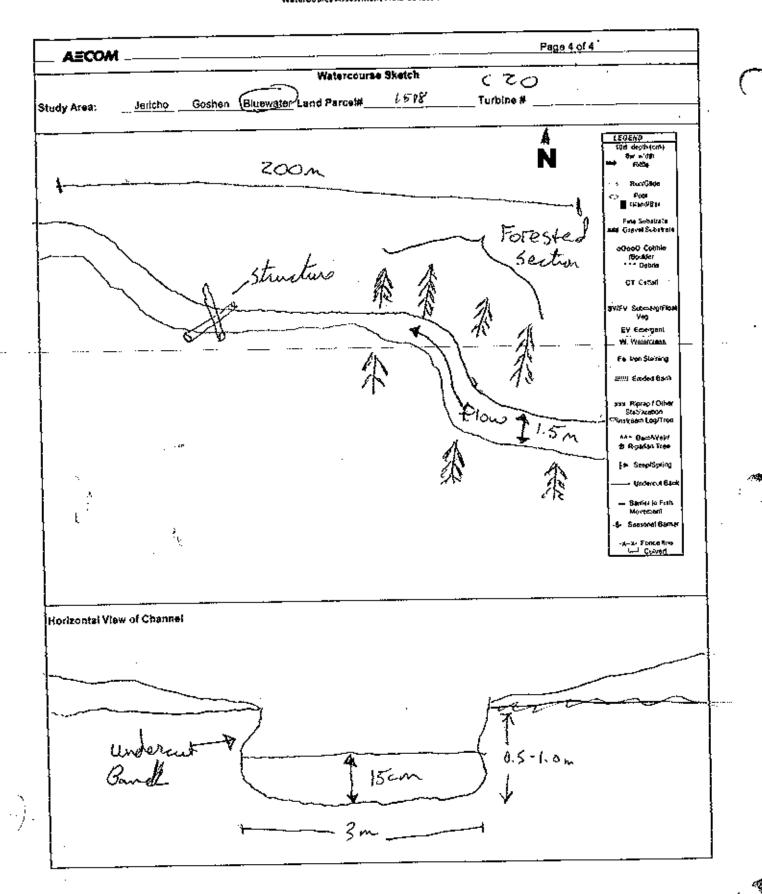
| | ··· - - | w | fatercourse Sketch | | | |
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| dy Area: | Jericha | Goshen Bluewaler | _ Ļand Parcel# | 1254 | Turbine# (| खाँ आ हि |
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| Churtu Areas | Jericho | Goshen | Sittewater T | and Parcel# | 1508 | T: | rbinê # | <u>Sîte</u> | c20 |
| Study Area: Pate: | 00/12/1 | | Start time: | | am. | ——— (-) E | nd Time | 11:15 0 | 7/14 |
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| Other: | | | | | i | | | | |
| | in-9itu i | Water Quali | | | | Gr | ound Wi مرسد | eter indicatore | |
| WT (°C): | 13. | AT <u>(°C):</u> | 16.0 | | { | Vatercress | 197 | Bank Seepag | |
| pH: | | Gond { _ m/c | :m): | _ | 4 | ron Stainin Bubbling | ات 1 - 1 | None Other | |
| Water Clarity: | Ciear | 12 | Turble | | [| agn print H | _ | | |
| Notes: | | | | | · | | | | |
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| | | | | | | | | | |
| | | | | Stream | Morphology | | | | |
| Site Length (m): | : 300m. | | | | Benk Stabilit | ty: | | | |
| | | | | | ĺ | Stable | Slightly | | Unstable |
| Channel Dimen: Mean Wetted | T | Meen Bank | Late Wildia | | ┨ | | unatebio []] | s tinstable গুড়া | |
| Mesn Wetted Width (m): | , , , , | (<u>iu):</u> Meso pauk | | 2,7 | Left Bank | u | ب | - - - | |
| Mean Wetted Depth (m): | 1// 5 1 | Mean Bank (m): | | 0.8 | Right Bank | <u></u> | | | |
| Flow Description | on: | Tric | kla of remoting | flow of bottons in | sanual. ruadon | Potendo. mansL/ | ally 1 Swany | permanent ofhicket a | via grows utlant. |
| Notes: | Cypnni | dj obser | ved 8 | nes d | | | · | | |
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| AECOM | | | | | | | | Page 2 of 4 | | |
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| · · · · · · · · · · · · · · · · | | | <u>5</u> | itreem Morph | ology feantir | rued) | | | | |
| Substrate (< = >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sci Ci - Clay MK-Marck DT-Detrilus Other | Description | 5a= 5 | | | Notes: A forest & S thru Silt | Pool 25 laterally wanth | 10 meender cket/mend | al Structure (* Run 10 ing Stream low marsh, vident, M | Flat 55 Harn wo to Downcut | decid. ring ateral |
| | | | | H | bitet | | | | | |
| Instream Cover (* None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | <u></u> | Other: | | |
| | 15 | | | 10 | 15 | | | | | |
| Canopy Cover (% 100-90% 90-80% | closed cove | 97): 30-1% 0% | <u> </u> | | er (% cover) 50 L0 | Shrubs | /20 us 20 | Man-made structures Other | · | |
| 80-30% Notes: | East en West en | d in dec d in fho | idums Ukut swo | forest/swar | omp a to | see cove is hen | r. becerus | ioner/sh | nd Cava | r |
| Obstru | ctions to Fig | h Passage | | | Deaine | age Featur | ee within S | tudy Area | | |
| No Obstructions Natural | 12 12 | Man-Made | u | Observations | of Land Top | pography v | within 120 n | n buffer area: | | |
| Description: | Siason | l lond | flew | | Flat Stream | to vol | lling i Heys | o broad | • | |
| Terrestrial feature | | Yes Yes | No No | | | | | | | |

| AECOM | • | | Page 3 of 4 | |
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| er General Co | omments Regarding the Study Area: | | | |
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| ic. | OUE VIEW OF | | | |
| # | Sklam | · | | |
| | Overview of Stream channel | | | |
| #2 | | | | |
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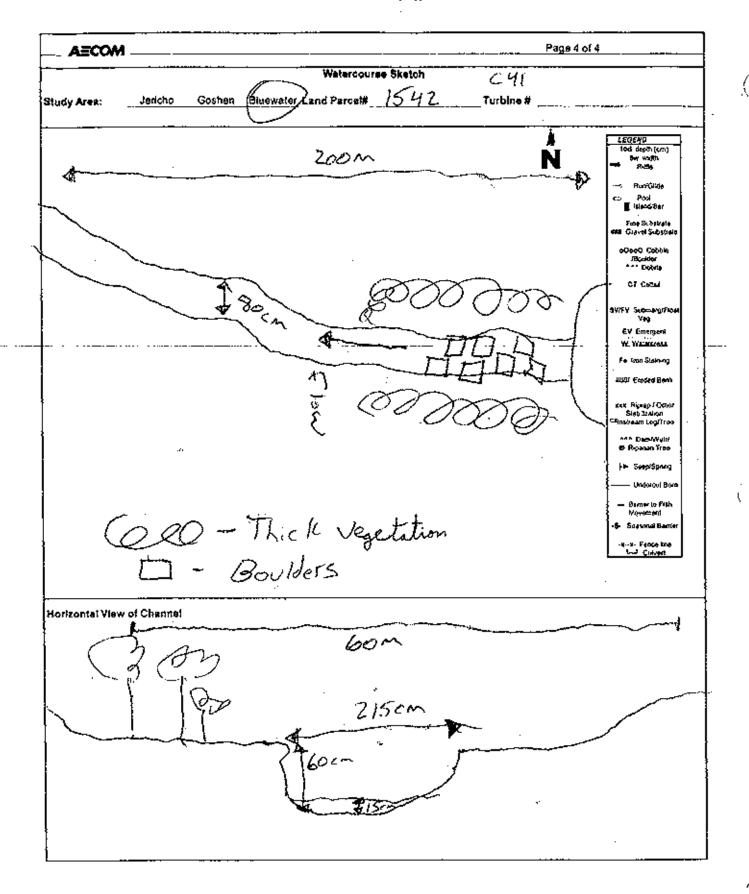


| AECOM | | Page 1 of 4 | | | | | |
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| 75CO771 | | Floid Crow: N. Holges, T. Sharney | | | | | |
| l have-t- | • | formation Line (1542) Sign (144) | | | | | |
| Study Area: Jerich | Tand talen | | | | | | |
| Date: Oct 1 | | End Time: | | | | | |
| Weather Conditions: L | ght rain 15 | Field Notes By: | | | | | |
| | | N.14 odges | | | | | |
| | Site Le | ocation | | | | | |
| | Access from Browson Lin | approx, halfway between Pavillion + Contenns | | | | | |
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| | UTM Co- | ordinates (p3 mulfienctionity | | | | | |
| Easting: | Northing: | Description: | | | | | |
| Ezetin <u>o:</u> | Northing: | Description: | | | | | |
| Easting: | Northing: | Description: | | | | | |
| Easting: | Northing: | Description: | | | | | |
| Surrounding | Landues/Pollution Sources | Type of Watercourse | | | | | |
| Residential C | Mesdow Wetland | Intermittent | | | | | |
| Forest 🖽 | Livestock III | Ephemerai 🗀 | | | | | |
| Other: | | | | | | | |
| {n- | Situ Water Quelity | Ground Water Indicators | | | | | |
| WT (°C): 15°C | AT(°C): | Watercress 🖽 Sank Suspage 🖽 | | | | | |
| pH: | Gond (s/cm): | Iron Staining 11 None | | | | | |
| #.u,- | | Bubbling 🖺 Other 📋 | | | | | |
| Water Clarity: Clea | | | | | | | |
| Notes: | Abundant Ivon staining | throughout, bubbling at one location, | | | | | |
| | Scatter | ed watercress | | | | | |
| | | | | | | | |
| Miles transfer (-1- 2 - 4- | | forphology Bank Stability: | | | | | |
| Site Length (m): 200 | ~ | | | | | | |
| Channel Dimensions | •. | Stable Slightly Moderately Unstable unstable | | | | | |
| **** | Mean Sankfull Width 2-/ | Left Sank 🗇 🖽 🗓 | | | | | |
| Width (m): 0-9 | (m): | | | | | | |
| Mean Wetted O. I Depth (m): | Mean Bankful Depth 0.6 | Right Bank 🔲 🔯 🗓 | | | | | |
| Flow Description: | Moderate flow reli | afive to other streams nearby. | | | | | |
| | | · · · · · · · · · · · · · · · · · · · | | | | | |
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| Notes: | Cara Later | and the | | | | | |
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| AECOM | | | | | | | | Page 2 of 4 | |
|---|---------------------------------|---------------------------|---------------|------------------------|------------------|-------------------------------|----------------|-----------------------------|--------------------------------|
| | | | - 1 | Stream Morph | logy (conth | ued) | | | |
| Substrate (< * >) Bo · Boulder Co · Cobble Gr · Gravet Sa · Sand Si · Sill CI · Clay MK-Muck DT-Detritus Other | Description | | > Gv : | >80°-c1 | Notes: and lati | Pool 30 Meand mal ma | 30 eving cl | Run 30 hourd in | Fiat 10 Journall Sind/Silf. |
| natream Cover (| 24) | | | He | bitat | | ' | | |
| None | Woody Debris | Soulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
| | 25 | 10 | | 10 | 15 | | | | |
| 'Aquatic Vegetati | | rosont (alga Vatercres | | | t etc.) | | | | |
| Canopy Cover (% | closed cov | er): | | Types of Cov | er (% cover) | | | | |
| 100-90% 90-80% 80-30% | | 30-1% 6% | 1.7 1.7 | 1 | 50 | Shruba Herbaceo | _ <u>5</u> | Man-mad structure Oth | PE |
| Notes: | | | | <u> </u> | | | | | |
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| | clione to Flo | eh Paesage | | | Drain | ge Featur | ee wilhin S | ludy Area | |
| No Obstructions Natural | | Man-Made | 如 | Observations | of Land Top | ography v | viihin 120 r | n buffer area | ıt |
| Description: | 5 m dro nd outle of deach | p slunct t at up | eure Arcam | | Flat 1 | to rell | ing agu | icultur | ₹ |
| | | _ | | | | | · · · · · · | | |
| Terrestrial feature Terrestrial Recon Fo | | Yes | (No) | Shrab | thicket | n 601 | n wid | i valley | |
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Project #Ammer: 6011/4277

| AECOM | I | Page 3 of 4 | | | | | |
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| her General C | omments Regarding the Study Area: | | | | | | |
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| Property ID: 1085 (Jurbine 14) | Date: 0 25 11 |
|--|---|
| Property Access: 1085 From Centernial Rd - Leased | |
| Field Investigators: SP, GF | Weather: Overcast, light rain |
| Terrestrial Feature Present: No 💢 Yes 🗆 Provide brief descrition of observations (i.e. hedgerow, treerow, woodlot, | valleylands, deciduous vs coniferous, crop) |
| | |
| | |
| Photograph Numbers: | |
| Aquatic Feature Present: No Yes □ | |
| Provide breif description (i.e. drainage ditch, watercourse, intermittent, | |
| grassed surle present, no during investigation - sure conveyance during rain a | ace water |
| conveyance during rain a | vents/freshette |
| Photograph Numbers: 278 - 279 | |

AECOM

Reconnaissance Assessment Record

Walked CIOZIA

| Property ID: \\ | Date: Oct 25 11 |
|--|---|
| Property Access: LlaSed | Start Time: Start Time: 19.00 |
| Field Investigators: SA, GF | Weather: OVEV COST |
| Terrestrial Feature Present: No Yes Provide brief descrition of observations (i.e. hedgerow, i | treerow, woodlot, valleylands, deciduous vs coniferous, crop) |
| Photograph Numbers: | Turbine 15 |
| Aquatic Feature Present: No Yes Provide breif description (i.e. drainage ditch, watercou | K.: |
| headwater to cement culvert to the drainage | Standing water |
| Photograph Numbers: 318 - 38 | 30 |

| Property ID: 1524 | Date: 0ct 25 / |
|--|---------------------------|
| Property Access: KOE | Start Time: 14 1. 30 |
| Field Investigators: SP, G+ | weather: Overcast |
| Terrestrial Feature Present: No Des Marie Provide brief descrition of observations (i.e. hedgerow, trearow, woodlot to response has been been been been been been been bee | |
| Photograph Numbers: | |
| Aquatic Feature Present: No 💆 Yes 🖸 Provide breif description (i.e. drainage ditch, watercourse, intermittent, | , permanent) |
| Suble features pres standing water-gra in agricultural field | sents ass feature d |
| Photograph Numbers: | |

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| AECOM | | Field Crew: | Page 1 of 4 | |
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| | Ceneral Infor | mania. | 1 | |
| Study Area: Jericho Goshen Study | water Land Parcels | D74 觉 | nessional | 42. |
| Date: DC+ 25111 Start | time: 16 25 | | d Time: | 40 |
| Veather Conditions: SVE(CGSi ,)(g) | | Id Notes By: | -· <u> </u> | , |
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| Easting: 44(2785 North | | | ecription: (4 a | |
| Easting: 44682 North | | | ecription: | |
| | | | ecription: | 2. SA 1 |
| Easting: 44 69 45 North Surrounding Landuse/Pollution 5 | ources | Ty | pe of Watercourse | |
| Residential 🔐 Meadow 🗓 | ⋬ / | Intermittent | ∰ Channella | ::-T |
| Agriculture | <u> </u> | Permanent Ephemeral | ₩ Natural Cha | nnet 12 |
| Other: | | | | |
| lotes: (include any inputs into the system i.e. | tile drainage, seepage: | e, overland flow) | O | |
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| 7,0 | 1 10 | منته حمد المصاحب | 00. 000 | . ~ 1 |
| lotes: (include any inputs into the system i.e. 10 to drains obs 10 to rally area. | -MC 17 /000 | ated in vo | Den ave | Marine A |
| 11) to rally area | -WC 14960 | ر ل ه ها ۱۸٬۷۵ ۱۸ (په ۱۵۷۷ | COELS GVER B - MOTER | Albains - |
| COSCENT HEROS COYN | - WC 15 9000 | ztad in Vo In (wi CU2 Gro | and Mater Indicator | Albertas A |
| Gayoren Linestas Corn In-Situ Water Quality | v - Pila ova | a tard in Vio kn (de CUQ. Grow Wetercrese | Qey avec B - 1/10 t W und Water Indicator | • |
| AT (°C): 9° AT (°C): 9° AT (°C): 9° | v - Pila ova | <u> </u> | und Water Indicator | • |
| In-Situ Water Quality AT (°C): Cond (s/cm): | 1 - 15 1 0 0 0 0 | <u> </u> | und Water Indicator | • |
| Mater Clarity: Clear Ed S Corn | rbid 🖽 | Kn (d≥ C.C.). Groi Wetercrese Iron Stalning Bubbling | Bank Seep None Other | ••• |
| Mater Clarity: Clear Ed S Corn | rbid 🖽 | Kn (d≥ C.C.). Groi Wetercrese Iron Stalning Bubbling | Bank Seep None Other | ••• |
| Mater Clarity: Clear Ed S Corn | rbid 🖽 | Kn (d≥ C.C.). Groi Wetercrese Iron Stalning Bubbling | Bank Seep None Other | ••• |
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| In-Situ Water Quality NT (°C): Q°C AT(°C): 8°C pH: Cond (slam): Water Clarity: Clear E Tur Notes: WC OCA ked in our | rbid D | Wetercrese Iron Stalming Bubbling | Bank Seep None Other | ••• |
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| tream <u>Cover (</u> | %) | | | , . | | , _ | | | | | | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vagetation* | Undercut Bank | ļ | .= | Other | ' : | | | |
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| Study Area: | Jericho | Goshen | Bluewater | | | | (A(C))/ S Turbine # (| 0.46 | |
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| | | nduse/Pollu | tion Source | • | 1 | | Type of Watero | ourse | |
| Residentia Agriculture | · - | Meadow Wetland | | | 1 | Intermittent | | nnelized | |
| Fores | | Livestock | , <u>;</u> | | | Permanent Ephemeral | Natur | al Channet | ' |
| Other: | , | | | | | | | | |
| | In-Sit | tu Water Qua | lity | | <u> </u> | 6 | iround Water Inc | dicators | |
| MT (°C): | <u> </u> | AT(°C): | - A | | 1 | Watercres | s 🔄 Bani | k Seepage | IJ |
| sH; | | Cond (a) | (cm): | |] | Iron Staini | ing 🖾 Non- | • | L |
| Water Clarity: | Clear | <u> </u> | Turbid | | 7 | Bubbling | 1 Othe | ır | |
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| Mean Wetted | 0 20 | Mean Bank | tful Depth | | Right Ban | k 🗀 | , ps : Д⊃; s | 2 1 | |
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| low Descriptio | n: Sala ai | (C | nekt | 🤈 | slm | | | _ _ - | |
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| _ | | | | itreem Morpho | Hogy (conti | rued) | | | · |
| iubstrate (< = >) | | | | | , | | Morphologic | al Structure (| %) |
| Bo - Boulder | Description | п | | | | Pool | Riffle | Run | Flat |
| Co - Cobble Gr - Gravel | | | | | | 120 | 40 | 40 | |
| Sa - Sand | .5 X | 1.00 | 5.0 | | | 100 | 117 | | |
| Si - S⊪l Cl - C'av | -500 | Gr XG | 0 7370 | | Notes: | | | | |
| MK-Muck | | • | | | | | | | |
| DT-Detritus Other | | | | | | | | | |
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| killa 55 eve | <u> </u> | (ij, 00i | 310-678 | ··· | bitat | | | | |
| natzeam Cover (* | | | | | ii) i(at | | | | |
| Tan Garage | Woody | | | Aquatic | Undercut | | | | |
| None | Debris | Boulders | Cobble | Vegetation* | Bank | | | Other: | |
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| j | / | | <u> </u> | Ι., | <u> </u> | <u> </u> | | | |
| Aquatic Vegetat | | | | | | | | | |
| Canopy Cover (% | | | - - - | Types of Cov | | | | | |
| 700-90% | | 30-1% | ப | Trees | - | | 50 | Man-mad | - |
| • • | | 0% | _ [] | 1 | | | out S | | |
| 90-60% 60-30% | 111 121 | 074 | | Q. assas | 200 14 | | 1000 C | | |
| Motes: | ann de Ale | 4/11/010 S | i Josef | an or | | • | | | |
| Obstri | uctions to F | ish Passage | | ! | Draii | inge Feati | ures within | Study Area | |
| No Obstructions Natural | | Men-Made | 34 | Observations | s of Land To | pography | within 120 | m buffer area | : |
| Description: | | | | | | | | | |
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| large | | 0.000 | | 1 | | | | | |
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| 2.5 m | na O Ne | 5h 0 | picky policed | | | | | | |
| Terrestrial feetu | res Presen | it Yes | No | | | | | | |
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Page 3 of 4

Other General Comments Regarding the Study Area:

- Channelogal action channel rose what area - channelogal action channels rose what areas shall area - meanders through theid - come areas to preme crosses areas bounds - same areas to trail slumping

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| | | Watercol | urse Sketch | | | |
| Study Area:J | ericho Goshen | Bluewater Land Parcell | <u>. 1066</u> | Turbine # | <u>C46</u> | |
| Cosed rosers | | | | | SV/F | GEND d depth (cm) for width Riffite Run/Silde Poul Island/Ber Fung Supstrate Gravel Substrate JBoulder *** Oebre CT Certail V Sirbmergifical Voy W Embryan Y Walercrass I Iron Stanking W Embryan Y Walercrass I Iron Stanking W Embryan Sisteman Log-Tree Dann/Wer! *** Outpanen Tree Seep/Spring Jindicut Bart Movement Samsonal Barner |
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| (Sell) | | | | <u>C9</u> 41° | | |

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| AECOM | | | Field Crew: Spine |
| | | | General Information |
| Study Area: _ | | en Bluewater Land | |
| Date: () | <u> Droj i</u> | Start time:\ | (1.32) End Time: (3.10) |
| Weather Condition | ns: Ove<∽a` | >; | Field Notes By: |
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| .1 . | | . i . | Site Location |
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| | · <u> </u> | <u>-</u> | UTM Co-ordinates |
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| Easting: | | Northing: | Description: |
| Easting: | | Northing: | Description: |
| Fasting | | Northing: | Description: |
| Surro | winding Landuse/Po | ollution Sources | Type of Watercourse |
| Residential | ∐ Meac 12 N Weth | | Intermittent LL Channelized LA Permanent LA Natural Channel LL |
| Agriculture Forest | — [X] N Weth [X]SW Livesto | ek 🗒 | Permanent LX. Natural Channel L. Ephemeral L. |
| Other: | | _ | |
| WT (°C): | in-Situ Water (| | Ground Water Indicators Watercress IVI Bank Seepage [1] |
| м (с). pH: | | s/cm): | Iron Staining 🎞 None |
| | | | Bubbling [_] Other |
| Water Clarity: | Clear K | Turbid U | <u> </u> |
| Notes: | | | |
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| | | | |
| _ | | | Stream Morphology |
| Site Length (m): | | | Bank Stability: |
| A | | | Stable Slightly Moderately Unstable |
| C <u>hannel Dimensi</u> Mean Welted | | lankfull Width | |
| Width (m): | 2 0 Mean B | | Left Bank L.J & Zi Lyl 1 |
| Mean Wetled Depth (m): | 0.20 Mean B (m): | lankful Depth | N ← Right Bank 🗀 💢 🗕 🖼 |
| Flow Description | 0 2 - 1 | | |
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| GA O | Character Co. | 2 *. | |

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| Substrate (< = >) Bp - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Cl - Clay MK-Muck DT-Oetritus Other | Description | in (577) | | Stream Morph | ology (contil | Morphological Structure (%) Pool Riffle Run Flat () () () () |
| Instrument Cover I | | | | Ha | sbitat | |
| Instream Cover (| %) Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: |
| | 5/0 | / | < 5 | 10 | (O | |
| 100-90% + (*) 80-60% 60-30% Notes: | | 30-1% (f 0% | П У ра | Trees Grasses | <u> </u> | Shrubs Amande structures Herbaceous 4.0 Other |
| | | Ish Passage | | | | age Features within Study Area |
| No Obstructions Natural Description: | ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ ₩ | Man-Made | | Pell Pell Pell Pell | and to | spography within 120 m buffer area: Ely fint to Street from d, Storis of room 4 |
| Terrestrial Featur | | | No No | | | |

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| Other General Co | omments Regarding the Study Area: Victorial Coulon History Victorial | ich form | stal avert pur woody dobris t | | | | | |
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| | | Photo log | | | | | | |
| Picture # | Description | Picture # | Description | | | | | |
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| Study Area: <u>Jericho</u> | | Watercourse Sketch d Parcel#_!D(0 3 | Turbine# | → |
| 3 | DO STOPE | 1 60 | | TEGEND 10d UepU (cm) 8w Yadth Rifflic Riffli |
| ļ | | Kidpen. | | |
| Horixontal View of Change | le l | | | |

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| | | | | | F | ield Crew | <u>: 50</u> | <u> </u> | |
| | | · | 6 5 | General | Information | | | | |
| Study Aren: | Jericho | Goshen | Bluewater | Land Parcel | *1667 t | 1002 | Turbine# | <u> </u> | <u>う</u> |
| Date: ()() [| <u> 3 (A) i</u> | | Start time: | 12123 | ·-r | l | End Time: | <u>: 12 4</u> | ص صا |
| Weather Condition | na: 🐠 | RY (c. | <i>5</i> + | | Field Notes B | ly: S | YA | | |
| C83 | Cra | 55 m | -7 · 0 | She | Location | n C | 110 | | |
| | | | | UTM C | o-ordinates - | ۲۲۵۷۷ | | | . |
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| Easting: | | | Northina: | | | (| Descriptio | en: | |
| | | ndusé/Pollut | ilon Source | • | | | Type of W | atercourse | |
| Residential Agriculture Forest Other: | 1 1 1 | Meadow Wetland Livestock | === | | Per | rmittent rmanent hemeral | | Channelized Natural Chann | |
| | In-Sh | Weter Qual | ity NG | | T | Ģı | round Wat | ler Indicators | |
| WT (*C): | | AT(°C): | | | + w | atercress | I Z | Bank Seepag | : ii |
| | | Cond (a/c | om): | | Ir | on StainIn | ت ور | None | |
| aH: | | | | | | | | | |
| pH: Water Clarity: | Clear | ĽŽ | Turbid | ப | 8 | ubbling | | Other | |
| Water Clarity: Notes: | Clear | / | Turbid | | Morphology | | | | |
| Water Clarity: Notes: | Clear | / | Turbid | | <u> </u> | | | dis 5 | |
| Water Clarity: Notes: Site Length (m): | | / | Turbid | | Morphology Bank Stability | f. | {(X') Slightly | d්ු 5 ි Moderately | idi |
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| Notes: Site Length (m): Channel Dimensic Mean Wetted Width (m): | 0,15 0,15 | Mean Bank (m): Mean Bank (m): | full Width | 8tream 2:5 0:45 | Morphology Bank Stability Left Bank | Stable | {(X'\ Slightly unatable ☑ | dis s Moderately unstable | Unstable |
| Water Clarity: Notes: Site Length (m): Channel Dimension Mean Wetted Width (m): Mean Wetted Depth (m): | 0,15 0,15 | Mean Bank (m): Mean Bank (m): | full Width | 8tream 2:5 0:45 | Morphology Bank Stability Left Bank Right Bank | Stable | {(X'\ Slightly unatable ☑ | dis s Moderately unstable | Unstable |
| Water Clarity: Notes: Site Length (m): Channel Dimension Mean Wetted Width (m): Mean Wetted Depth (m): Flow Description: | 0,15 0,15 | Mean Bank (m): Mean Bank (m): | full Width | 8tream 2:5 0:45 | Morphology Bank Stability Left Bank Right Bank | Stable | {(X'\ Slightly unatable ☑ | dis s Moderately unstable | Unstable |

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| <u> </u> | | | 3 | ream Morphs | ology (contin | ued) | | | |
| L_4445 (c = 5) | | | • | | | | | al Structure | (%) |
| batrate (< = >) Bo - Boulder | Description | 1 | | | | Pool | Riffle | Run | Fint _ |
| Co - Cobble | | | | · toret | [| 1 ² (1 | 40 | $ \psi_0\rangle$ | |
| Gr - Gravel Se - Sand | 610 |) 129 ²⁶ 9 | 11. 33 | (30)974 | 1 | 20 | 40 | 1 | |
| Si - Sill | | 7 | | | Notes: | | | | |
| CI - Clay | 7.1% | (pr) (b) | Ь | | | | | | |
| MR-Muck DT-Detritus | 3.17 | 121 / 10 | ,- | | | | | | |
| Other | | | | | | | | | |
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| | | | | H | ebitat | | | | |
| iream Cover (| (%) Woody | | | Aquatic | Undercut | | | Other: | - - |
| None | Debris | Boulders | Cobble | Vegetation* | Bank | | | | |
| | - | | | -0 | l col | T | | | |
| , | $ \cdot \cap^{\mathcal{C}}/_{\epsilon}$ | 1.5% | 123% | 75% | 15% | | | | |
| 1000 | 1000 | 7. | 1 2/0 | <u> </u> | | <u>. </u> | | | |
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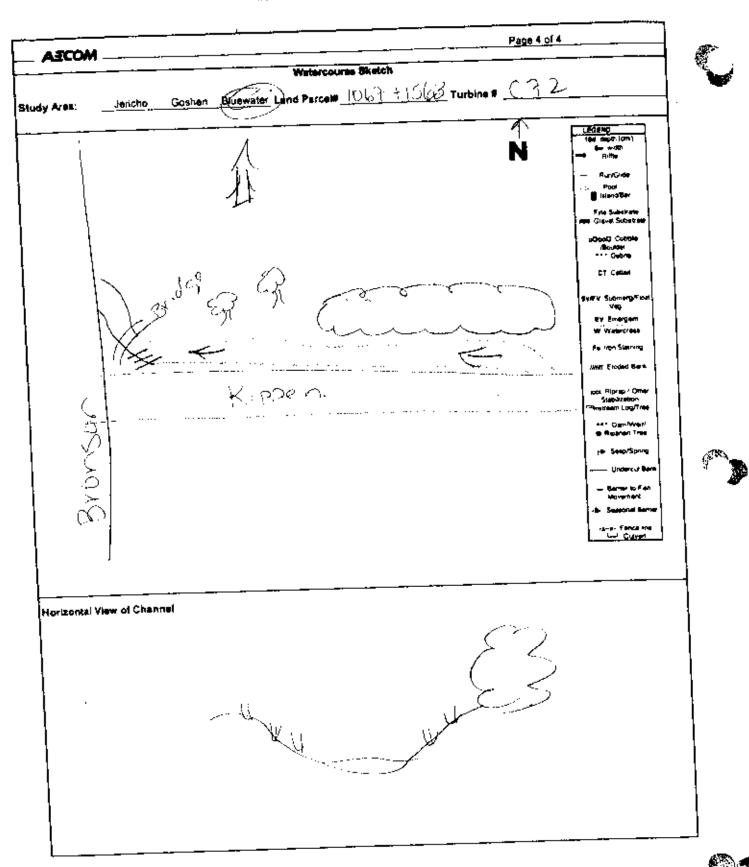
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| <u>₩</u> : <u> </u> | | Cond (a/c | <u>:m):</u> | | .1 | ron Stainh | - | None | <u> </u> |
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| Notes: S | none u | .) < | | | | | | | |
| | () | | | | | | | | |
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| Sea_ 1 1 | | | | Stream | Morphology | 4 | - | | |
| Site Langth (m): | | | | | Bank Stabili | ty: | | | |
| Channel Dimens | ions. | | | | | Stable | Slightly unstable | | Unstable |
| Mean Wetted | 12 001 | Mean Bank (m): | full Width | 4.00 | Left Bank | | r‡a∕≺ | <u>-</u> > ⊯4 | |
| Width (m): | 7 | • | | | + | _ | , | · | |
| Mean Wetted Depth (m): | 0.12 | Mean Bank (m): | ful Depth | 1.0 | Right Bank | | ₩. | -7 x | |
| Flow Descriptio | n: įį | · . | | | | | | | • |
| | 4.3 | 5 s/m | | , | | | į | | |
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| Notes: | ·~ Dan | () | | | | | | | |
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| Stream Morphology (continued) | | | |
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| | i Structur <u>e (</u> | | 1 |
| patrate (< = >) Bo - Boulder Description Post Riffle | Run | Flat | 4 |
| Co - Cobble | 690 | | |
| Sa - Sand Sa SI SI | <u> </u> | <u> </u> | _ |
| Si - Sit Notes: | ٠. | 1 1 | : |
| CI - Clay | | | |
| MK-Muck DT-Definius | | | |
| Other | | | |
| Yerd Sounds (VOY hors) I works | | | |
| Habitat | | | |
| stream Cover (%) | | | |
| None Woody Boulders Cobble Aquatic Undercut | Other: | | \ |
| None Debris Boulders Cobbis Vegetation* Bank | | | |
| 10 50°C | | | |
| 1 / W 5% c | | | 1 |
| | | | |
| ecopy Cover (% closed cover): Types of Cover (% cover) | | | |
| Cattob) pares (14 access as a contract of the | Man-ma | | |
| 100-90% 11 30-1% Trees Shrube | _ structur Oth | | |
| 90-60% C O% C Grasses C Harbaceous 🐼 | 011 | | |
| 60-30% | | | |
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| Obstructions to Fish Passage Dreinage Features within 5 | Study Area | | _ |
| Fig. 1. And the state of the st | m buffer are | pà: | |
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| Linad coloquida | t lat | | |
| Description: Land relatively | | | |
| none observed | | | |
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| Terrestrial features Present Yes (No) | | | |
| No. | | | |
| Terrestrial Recon Form Filled out Yes No | | | |
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| - Oracles - Chann - Chann | The control of the Study Area: (() () () () () () () () () () () () () | | 770,20 m 6692 665 - 1665 - 1665 | ryc |
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| Jericho | _Goshen | (Bluewater Lar | nd Parce#_ | 1815 | Turbine # | |
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| | | | () () () () () () () () () () | | .J | · (V. 1.8) |
| | Jericho | Jericho Goshen | Jericho Goshen Bluewater Lar | Jericho Goshen Bluewater Land Parcelli was of Channel | Jericho Goshen Buewater Land Parcelli 1912 | Watercourse Sketch Jericho Goshen Gluewater Land Parcelli 18 12Turbine is Vi her |

suce C110. We

| Property ID: 10(a(a | Date: (************************************ |
|---|--|
| Property Access: Leased | Start Time: 9:40 End Time: |
| Fleid Investigators: 5 A (57 F | weather: Overcast |
| Terrestrial Feature Present: No 🗵 Yes 🗆 Provide brief descrition of observations (i.e. hodgerow, treerow, w | yoodlot, valleylands, deciduous vs coniferous, crop) |
| | · · · · · · · · · · · · · · · · · · · |
| | |
| Photograph Numbers: | <u> </u> |
| Aquatic Feature Present: No 🖄 Yes 🗆 Provide breif description (i.e. drainage ditch, watercourse, interd | mittent, parmadent) |
| Swale features - r | <u>00 water.</u> |
| | |
| Photograph Numbers: 304 - 308 | |
| 1 Tuching 4 + 100 | A access |

Walked C

| Property ID: 1022 Date: OC+ 24e/1/_ |
|---|
| Property Access: 100 Start Time: 9:00 End Time: 9:20 |
| Field Investigators: 2/1 (57 F) Weather: 10/1/10/25 F |
| Terrestrial Feature Present: No Des & Provide brief descrition of observations (i.e. hedgerow, treerow, woodlot, valleylands, deciduous vs coniferous, crop) + (NVeStvial team has been |
| to site |
| Photograph Numbers: |
| Aquatic Feature Present: No 💆 Yes 🗆 |
| Provide breif description (i.e. drainage ditch, watercourse, Intermittent, permanent) |
| Swale features no water |
| |
| Photograph Numbers: <u>284-298</u> |
| Turbine 18 + road + collection line |

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| Property ID: | 1657 | (AHY)_ | Date: 100 212011 | - |
| Cronoth Agnasa: | 11647 | | Start Time: 15 15 | |
| Property Access | | | End Time: 15 25 | |
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| Field Investigators | <u>. 10,14C</u> . | <u>-</u> | Weather: DURY CONS. | |
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| Terrestrial Fe | ature Present: No [| ∐ Yes □ | | |
| | | | lot, valleylands, deciduous vs coniferous, crop) | |
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| Photograph Nu | mbers: | · | | |
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| Aquatic Feat | ture Present: No 💆 | Yes 🗆 | | |
| | lescription (i.e. drainage dite | | ent, permanent) | |
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| <u>- v</u> | vila efection | no sta | advires | |
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| lane | ad | Date: 101, 5 | \circ |
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| Property Access:\(((\))\) | <u> </u> | End Time: Start Time: | 5 |
| Field Investigators: | , b.1F | Weather: (1) (1) (| <u> </u> |
| Terrestrial Feature Pro | esent: No 🗆 Yes 🗅 | | |
| | | w, woodlot, valleylands, deciduous vs con | ferous, crop) |
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| Photograph Numbers: | | | |
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| Aquatic Feature Pres | sent: No 🖾 Yes 🗆 | ntermittent. permanent) | |
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| Aquatic Feature Pres |) (i.e. drainage ditch, watercourse, in | | |
| Aquatic Feature Pres |) (i.e. drainage ditch, watercourse, in | | |
| Aquatic Feature Pres Provide breif description |) (i.e. drainage ditch, watercourse, in | Buld-Farmer | - |

| AECOM | | | | | | Page 1 of 4 | |
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| ABCOM | | | Flei | d Crew: | 50 V | عرب الأراد الأراد | |
| | - 2 | | Information | | | | |
| Study Area: Jericho | Goshan (Bluewate) | Land Parcell | 16001 | <u>(け)作</u> | urbine# | <u>() </u> | <u>į </u> |
| ote: Nov 3/1 | Start time: | 15:09 | T | | nd Time: | | 5 |
| Veether Conditions: OV | | | Field Notes By: | | | | |
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| Eastino: | Northing: | | | | escription | H: | |
| Surrounding Lan | dust Pollution Sources | | | | ype of Wa | tercourse | |
| Residential Agriculture Street | Meadow ⊠ C.∪ Wetland ∐ Livestock ∐ | Hival | Perm | nittent nanent smeral | | Channelized eturel Chan | |
| | Water Quality | | [| Gr | ound Web | w Indicatore | |
| | AT(°C): °C | | 1 | lercress | | Bank Seepe Noon | · — |
| <u>M: 1.15</u> | Cond (((stem): 6 ' | 97 | -1 | n Steinin bbling | יבי פו | None Other | 21 |
| Water Clarity: Clear | Turbid | മ | 1 | ooming. | _ | Diling. | |
| Notes: green co |) our Clav | U | Morphology | | | | |
| Site Length (m): | | | Bank Stability: | | | | |
| Channel Dimensions | | | s | table | Slightly unstable | Moderately unstable | Unstable |
| Mean Wetled -z | Mean Bankfull Width (m): | 8 | Left Bank | | ₩. | | |
| | Meen Bankful Depth (m): | 2,5 | Right Bank | | 囟 | | |
| | A CARRELION | | | · | • | | |
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| | - | | <u></u> | ream Marpho | logy (continu | Hd) |
| estrate (< = >) so - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Sill Ci - Cusy | Description | (> 5π. | | | Notes: | Morphological Structure (%) Pool Riffle Run Flat |
| MK-Muck DT-Oetrius Other | | _ | | | | |
| | | | | Ha | ibitet | |
| None | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: |
| | | | | | 5% | |
| 100-90% | 1 <u>"</u> ! 1 | 0% | :1 | Grasse | is (<u>-33)</u> | Herbaceous (20) Other |
| 90-60% 60-30% Notes: Y (2 | H (1) (20) | 15 9 | aga ⁵ | 1 Mes 1 1 | . Foreign | Shrube 10% Han-made structures Harbaceous 100 Other Sorrow The core of tree |
| 90-60% 60-30% Notes: Y (2 | H (1) (20) | 15 9 | aga ⁵ | 1 Mes 1 1 | Geraria. Geraria | to you from |
| 90-60% 60-30% Notes: Y 1 /2 Cove / 10 | H (1) (20) | Po Gr | arga ^T i n bul | The or | Drain | Sorrio Strains of tree |
| 90-60% 60-30% Notes: Y 1 /2 Cove / 10 | D (A) (A) (A) (A) (A) (A) (A) (A) (A) (A) | Po Gr | n bu! | The or | Drain | to you from |
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| P0-60% 60-30% Notes: Y Y COVEY Obs No Obstructio Natural | irructions to | Flah Pessag Man-Mad | n bul | Observation | Drain | Sorrio Strains of tree |

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| | mments Regarding the Study Area: | alin samis s | | |
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| AECOM | Watercourse Sketch | 1/1172 Aug C71 |
| dy Area: Jericho | Goshen (Bluewater Land Parcell 60) | |
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| dorizontal View of Chai | | in the agreement |
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| | | | Genera | I Information | PIOLO CIEW | r: ,2 ∏ , | .91 | |
| Study Area: | Jericho | Goshen Bluewater | Land Parce | <u>* 1658</u> | | Turbine # | <u>C99</u> | |
| Date: (V 07 | 3/11 | Start time | : 154 | 30 | | End Time: | 15:42 | > |
| Weather Conditi | ons: Ove | rrast | | Field Nates | By: ⊖K | ٩, | | |
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| Easting: | | Northing: | ; | | | Descriptio | in: | |
| Şur | rounding Li | induse/Pollution Source | 4 | | | Type of W | etercourse | •••• |
| Residential Agriculture Forest Other: | · 🗓 | Meadow [] Wetland [] Livestock [] | | P | lermittent ermenent phemerei | | Channelized Natural Chann | |
| | | u Water Quality | ······································ | | | | ter Indicators | |
| WT (*C): 10 .6 pH: 7 | | AT(°C): | υυ ω | | G Watercres Iron Staint Bubbling | • 🗀 | Bank Seepag None Other | تا م ا |
| pH: 그 | SC AS Clear | AT(*C): Cond ()(s/cm): | | | Watercres Iron Staint | le 🗀 | Bank Seepag None | 3 |
| pH: 그 | SC AS Clear | AT(*C): Cond (((a/cm): 7 | | | Watercres Iron Staint | le 🗀 | Bank Seepag None | 3 |
| pH: 그 | SC B Clear | AT(*C): Cond (((a/cm): 7 | | | Watercres Iron Staint Bubbling | le 🗀 | Bank Seepag None | 3 |
| Water Clarity: | SC B Clear VIV. C | AT(*C): Cond (((a/cm): 7 | | Morphology | Watercres Iron Staint Bubbling | le 🗀 | Bank Seepag None Other | |
| Water Clarity: Notes: ()/// | SC B Clear VIV. C | AT(*C): Cond (((a/cm): 7 | Stream | Morphology | Watercres Iron Staint Bubbling Bubbling | ing [] | Bank Seepag None Other | |
| Water Clarity: Notes: () Site Length (m): Chennel Dimeni Mean Wetted Width (m): Mean Wetted Depth (m): | Clear VIV. C | AT(*G): Cond (| Stream 5 | i Morphology Bank Stabili | Watercres Iron Staint Bubbling ity: | Slightly unstable | Bank Seepag None Other Moderately unstable | ⊠ □ |
| Water Clarity: Notes: () Sita Length (m): Channel Diment Mean Wetted Width (m): Mean Wetted Depth (m): Figur Description | Clear VIV C | AT(*C): Cond (| Stream 5 2.0 | Bank Stabili Left Sank Right Sank | Watercres Iron Staint Bubbling ity: Stable | Slightly unstable | Bank Seepag None Other Moderately unstable | ₩ Unstable |
| Water Clarity: Notes: () Site Length (m): Channel Dimeni Mean Wetted Width (m): Mean Wetted Depth (m): Flow Description ()() () () Notes: | Clear Clea | AT(*C): Cond (((a/cm): | 5 2.0 | Bank Stabili Left Sank Right Sank | Watercres Iron Staint Bubbling ity: Stable | Slightly unstable | Bank Seepag None Other Moderately unstable | ₩ Unstable |

August 1920/1921

| MODEL | | | | | _ | | | | | _ | | _ |
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| | | | 5 | ream Morpho | logy (contin | ued) | | | | | | |
| etrete (< = >) o - Boulder o - Cobble Gr - Gravel | Description | | | | ı | Pool | orpholog Riffie | | ucture (Run | | | |
| Se - Sand Si - Salt CI - Clay MK-Muck DT-Detritus Other | C۱ | 75a = | 3, | | Notes: | | _ | | | <u>I</u> | | |
| | | | | На | bitet | _ | | | | | | |
| tream Cover : None | (%) Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Oth | 6r: | | _ | |
| | 20 | | / | 20 | | | | | | | | |
| 0 (a anopy Cover 100-90% 90-60% | (% closed co | ver): 30-1% 0% | · · · | Types of Co Tres | ver (% cover | Shrub 2 Herbace | • 5 ous 3 | <u> </u> | Man-ma structur Oti | idu 198 _ 197 | | _ |
| anopy Cover 100-90% 90-80% 60-30% | (% closed co | 30-1% | • | Types of Co Tres Grasse | ver (% cover | Shrub Herbace | • <u>15</u> | */o | Man-ma atructur Ota | ide ret _ rer | | |
| anopy Cover 180-90% 90-80% 80-30% otes: | (% closed co | 30-1 % 0 % | ui — | Types of Co Tres Grasse | | Shrub Shrub Herbace | • | _ | - | ide res_ her | | |
| Obstructio | tructions to f | 30-1% 0% | <u>u</u> | Tree: Grasse | Dra | Shrub Herbace Inage Feat | ures will y within 1 | nin Stud 120 m b | y Area | | | |
| Obs No Obstruction Natural Description: | tructions to f | 30-1% 0% Fish Pessag Man-Made | <u>ui</u> | Tree: Grasse | | Shrub Herbace Inage Feat | ures will y within 1 | nin Stud 120 m b | y Area | | | <u>-</u> |
| Oba No Obstructio Natural | tructions to f | 30-1% 0% Fish Pessag Man-Made | <u>ui</u> | Tree: Grasse | Dra | Shrub Herbace Inage Feat | ures will y within 1 | nin Stud 120 m b | y Area | | | |
| Obs No Obstructio Natural Description: | tructions to f | 30-1% 0% | <u>ui</u> | Tree: Grasse | Dra | Shrub Herbace Inage Feat | ures will y within 1 | nin Stud 120 m b | y Area | | | |





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Other General Comments Regarding the Study Ares:

-2 branches merge at Beaverdam - Usan migh ND behind 3- 0,75-0,80 m Sept Satisments - Left branch flows through forested area-not in

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| Study Area: | Watercourse Sketch Jenctro Goshen Bluewater Land Parcel# () () ₹ | Turbine# <u>(99</u> |
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| Horizontal Vie | ow of Channel | |



| AECOM | - | | | | | Page 1 of 4 | |
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| | ···· | · · · · · · | t Information | feld Crew | <u>, AZ 1</u> | JI I | |
| Study Area: Jerich | o Goshen Bluew | blor Land Parce | | 1088 | Turbles # | C 88 | |
| Date: 1/107 3/11 | Start t | | 000 | | | 16 10 | |
| | | | Field Nates 1 | | ELINE THEME | 100 100 | |
| Veether Canditions: | <i>ሲኒ ርሲያ</i> ት | | FIEIG NOISE I | oy: ⊸∑¦i | ¥ | | |
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| Easting: | | ing; | | | Description | | |
| Easting: | | | | | • | | |
| | | ing: | | | • | | |
| Easting: Surrounding | North Landuse/Pollution 3o | ourcee | - | | Description Type of Wi | n: etercourse | |
| Residential 5.7 | Meadow I | j | Int | ermittent | 17/ | Channelized | 1521 |
| Agriculture 🔯 | Weiland 🛅 | į | | ermanent | | latural Chann | |
| other: Koadusau | Liveatock Li | , | E | phemeral | i_i | | |
| | Situ Water Quality | | | • | | er Indicators | |
| WT (°C): | AT(°C): | | ' | Watercres | • 121 | Bank Sespag | • <u>[</u> |
| pH: | Cond (_slom): | | _ | ron Stein | • | None | |
| Water Clarity: Clea | , 15 <u>0</u> 1 ⊤url | old 🗀 | | Bubbling | <u> </u> | Other | |
| Notes: | | | | | | | |
| 17U(85) | | | | | | | |
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| | | Street | n Morphology | | | - | |
| Site Length (m): | | | Benk Stabili | ty: | | | |
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| Channel Dimensions | | | | Stable | unstable | unstable | Unstable |
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MODEA Page 3 of 4 Other General Comments Regarding the Study Area: -agri drawn along road channers. -colleged measure our on - grass chosen channel offs - flows through the culture of the choiced Photo log Description Description u/s side

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| ther General Comments Regarding the Study Area: | <u> </u> |
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| Ground made uniform | |
| Steep high banks - Well vigulation | |
| - Slight moundaring stream days to age | C.S. in Streams |
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| ALECOVI | | | | Field Crew: SA MF | | | | | |
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| Study Area: | Jericho | Goshen Bluewater Start time: | <u>Cand Parcell</u> | गॅस2 ८)। | <u> የአጋ</u> ኬ | urbine 💆 ! | ويما | | |
| one: MON | -2177 | | 110 12 | .1 | | nd Time: | <u>C' D</u> | <u> </u> | |
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| Surr | ounding Le | nduse/Pollution Source | • | | · · · | ype of W | etercourse | | |
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| Agriculture Forest | | Wetland | | • | ermanent phemoral | 子, | latural Chann | ·• ' | |
| Other: | | | | <u> </u> | | | | | |
| | | u Water Quality | ٠ | _} | • | | er Indicatore | | |
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| <u>pH:</u> | | Cond (s/cm): | | ⊣ 1 | iron Stainin _i Bubblios | - | None Other | [2] [2] | |
| Water Clarity: | Clear | Turbid | ថ | ' | Bubbilng | | Other | | |
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MODEA Page 3 of 4 Other General Comments Regarding the Study Area:

- Cattail Choke it channel

- grass choked channel

- channelized uniform channel on both sides

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| Study Area: Jenicho Goshen Blowwater Lan Start time: | 1 5 End Time: 10 9 |
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| | UTM Co-ordinates |
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| Easting: Northing: | Description: |
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| Residential 🔯 Meadow 🖾 Agriculture 💋 Wetland 🗓 | Intermittent |
| Residential Meadow | Permanent 🖾 Natural Channel 🛄 |
| Other: | |
| in-Situ Water Quality | Ground Water Indicators |
| <u>wt (°C): 5 3 At(°C): 5°6 </u> | Watercress ☑ Bank Seepege ☐ |
| pH: 8,07 Cond (Listem): 7 (| |
| Water Clarity: Clear 🗹 Turbid | Bubbling C Other C |
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| Notes: fraget - the special day | |
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| | Stream Morphology |
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| | - | <u>-</u> | <u> </u> | tream Morpho | iogy (contir | ued) | | | <u> </u> |
| | | | • | | | | lorphologic | al Structure | (%) |
| betrale (< = >) Bo Bouxer Co Cobble | Description | | | | | Pool | Riffle 72 | Run 왕승 | Fint |
| Gr - Gravel Sa - Sand | | | | | | ند <u> </u> | 70 | 73.2 | $\perp \!\!\! \perp$ |
| Si - Silt CI - Clay MK-Muck OT-Detritus Other | S/ | 5) (n/ | ÿω, ' | , ; , , , , | Notes: | | | | |
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| None | Woody Debrie | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | | | Other: | |
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| nopy Cover | % closed cov | | 1×1 | Types of Co | er (% cove | r) Shrub | - 50 | Man-m | |
| , | | er): 30-1% 0% | - - 124 - 1 | Trees | 2% | Shrub | • 50 • 80 | Man-m Ø structu Od | nde ires her |
| anopy Cover 100-90% 90-60% 60-30% | (% closed cov | 30-1% | | Trees | 2% | Shrub | (C) (C) (C) (C) (C) (C) (C) (C) (C) (C) | Man-m Ø structu Ot | res |
| 90-60% 60-30% Notes: | % closed cov | 30-1% | <u></u> | Trees | 2% | Shrub Herbsca | ROUBE POLITY | Mari-m Structu Od | res |
| anopy Cover 100-90% 90-60% 60-30% iotes: Obs | % closed cov | 30-1% | <u>.</u> | Trees | 2º/c | Shrub Herbson | ures within | Study Aree | res |
| anopy Cover 100-90% 90-60% 60-30% iotes: Obs | tructions to F | 30-1% 0% | <u>.</u> | Trees Granses | 2º/c | Shrub Herbson | ures within | Study Aree | res |
| anopy Cover 100-90% 90-60% 60-30% iotes: Obs | tructions to F | 30-1% 0% | <u>.</u> | Trees Granses | 2º/c | Shrub Herbson | ures within | Study Aree | res |
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| MODEA | | | Page 3 of 4 |
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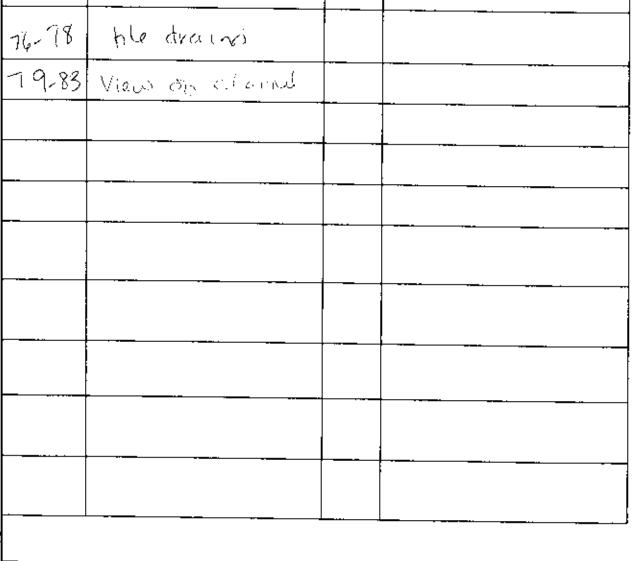
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| | | | Watercou | rse Bketch | | | |
| <u>Jericho</u> | Goshan | Bluewater | Land Parcel# | <u> 1619</u> | Turbine# | _ <u></u> | |
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| ew of Chann | •1 ~, , , | ,.l | <u> </u> | | 178 × 30 | -/- | |
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| | TIRAY | agr 1 | Corn | Jericho Goshen Buewater Land Parcelli COYY COYY | Carn | Jericho Goshen Buewater Land Parcell 1019 Turbine # COYY) COYY) Wardow Cory | Jericho Goshan Gluewater Land Parcall 1619 Turbine # TRATICAN CONTO |

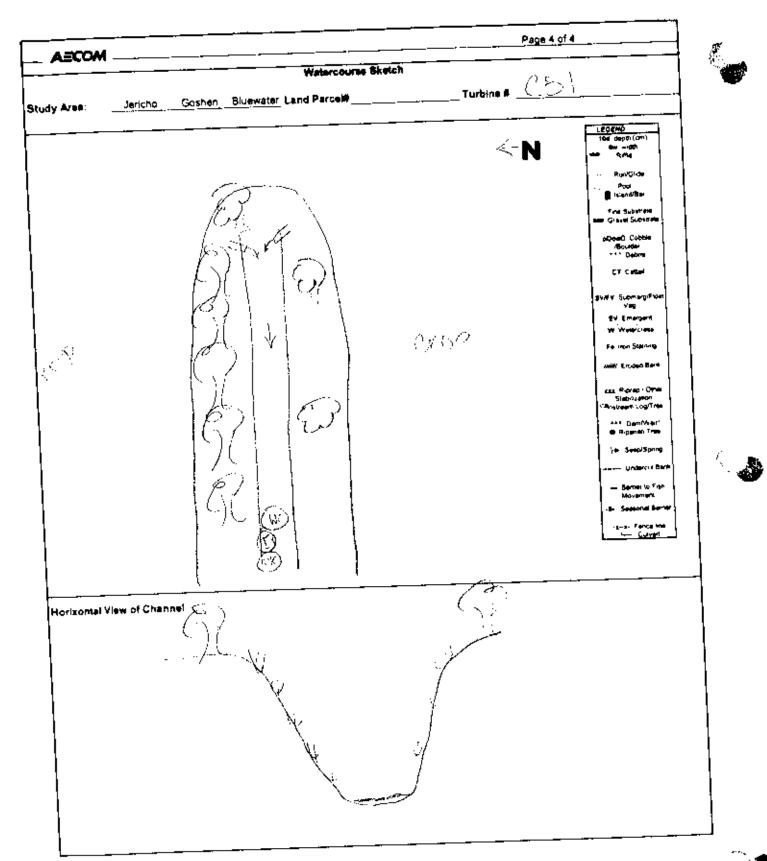
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| 06 Northing: <u>48158</u> | 79 Description: (5) |
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| | |
| Northing: | Description: |
| Northing: Landuas/Pollution Sources | Description: Type of Watercourse |
| Mesdow II Wetland II Livestock II | Intermittent Ghannelized M Permanent Hatural Channel Hatural Channel |
| s Into the system i.e. tile drainage, seer | Lacons, overland flow) |
| | • |
| - · | |
| Bitu Weler Quality | Ground Water Indicators |
| AT(°C): | Watercress 🖾 Bank Seepage 🗀 |
| Cond (Watern): 530 | Iron Staining None |
| Teaus (Shault 2 : | |
| 50 Ym | Bubbling C Other |
| r 🛂 Turbid 🗀 | Bubbling Cother C |
| ed the patronic and the | Bubbling Charles |
| ed the patronic and the | Bubbling Char Charles And Char |
| ed the patronic and the | Morphology Bank Stable Stightly Moderately Linetable |
| ed the patronic and the | Morphology Bank Stability: |
| | Landuae/Pollution Sources Mexicow Wetland Livestock Into the system i.e. tile drainage, ecep (OCS |

| Co - Cobble Gr - Gravel Se - Sand | Description | | \$t | ream Morpho | logy (continu | |
|---|-----------------|--------------|--------|------------------------|------------------|---|
| io - Boulder Co - Cobble Gr - Gravel Se - Sand | Description | | | - I | | |
| | | | | | | Pool Riffle Run Flet |
| St - Stit Ct - Clay MK-Muck DT-Detritus Other |) (| at (a Vi | gaC | | Notes: | |
| | | | | Ha | bitet | |
| tresm Cover (1 | Woody Debris | Boulders | Cobble | Aquatic Vegetation* | Undercut Bank | Other: |
| | 30 | | | 10% | | 1005 1,200 |
| 90-60% 60-30% Totes: | | 0% | | Grante | • <u>5/.2</u> . | Shrubs Shrubs Man-made etructures Other |
| | | Fish Passage | | | Drail | nege Features within Study Area |
| No Obstruction Natural | | Man-Made | | Observation | ns of Land T | opography within 120 m buffer area: |
| | | Carrier D | | 1000 | "" J | |
| headwa | a her a | hilp | · | | | |
| Terrestrial fea | tures Pres | errt Yes | No | | | |
| | n Form filled | out Yes | No | | | |



Waterbodies Assessment Field Collection Form A=COM Page 3 of 4 Other General Commenta Regarding the Study Area: - Straight channel originates out to the accuracy
from addicent agnification
- Propositionals woodow repartures to do advance
- reas
- nate 10, staggard reas
- bto to see these Photo log 75- 92 Piçture ¥ Description Description 75 New Boronnel 76-78 hle drains





Reconnaissance Assessment Record

| COM | |
|--|-------------------------|
| operty ID:(0)9 - BLW | Date: (10V 17) |
| operty Access: Leased | 10.00 |
| eld Investigators: SY TS | Weather: QUEVE AS (|
| | |
| Aquatic Feature Present: No Yes | ntermittent, parmanent) |
| Swale Fretzer to con Sprill Channel Free me WC in Forest NO.510 Puit ob bages inct flow | |
| Photograph Numbers: 20-Sath 121-11 | |

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BI - originar on from the drawn

33. Disginate I we adjacent pumperly
34-35

Evidence & erosian & Schned
banks

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<u>AECOM</u>

Reconnaissance Assessment Record

C105_

| Property ID: 1049 4 1088 | Date: Mov 100 1 |
|---|--|
| Property Access: ROE V 10 0.0055 | Start Time: |
| Field Investigators: SA 155 | Weather: OVECOS! NUMBER |
| Terrestrial Feature Present: No 🗆 Yes 🗔 | |
| Provide brief descrition of observations (i.e. hedgerow, treerow, | woodlot, valleylands, deciduous vs coniferous, crop) |
| | <u>,</u> |
| | |
| | |
| Photograph Numbers: | |
| | |
| Aquatic Feature Present: No Yes Provide breif description (i.e. drainage ditch, watercourse, int | ermittent, permanent) |
| Provide dick description (not stating a stating at the stating at | |
| tile drained field. | |
| Swale feature - no | |
| coment box arbeits | <u> </u> |
| Photograph Numbers: 36-NOY H) 3 | 9 50 M |
| Photograph Numbers: 30-NOY 17 | 7- DWYN |

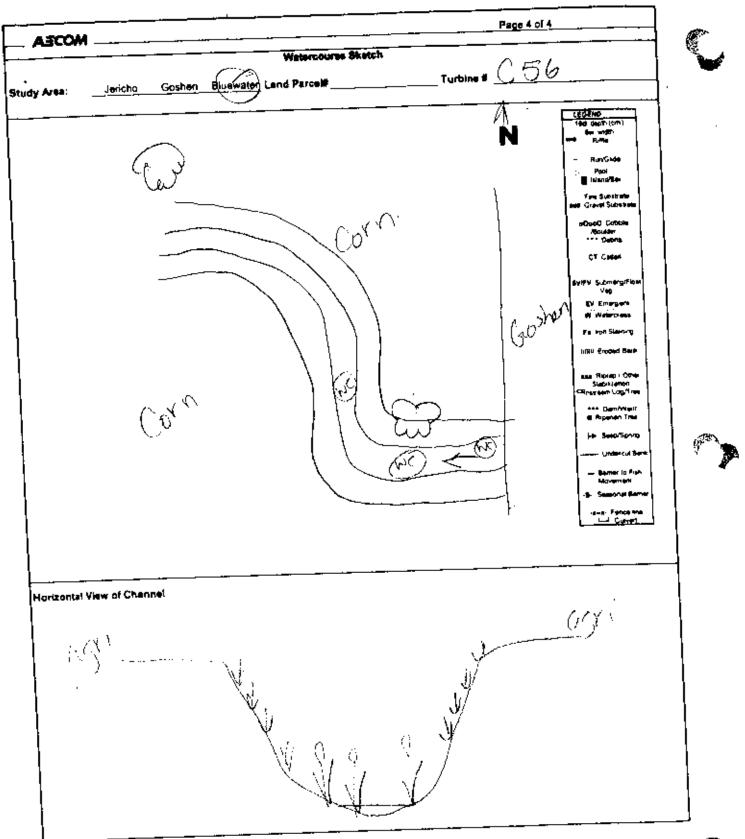
| Study Area: Date: <u>NIOV</u> | Jericho | Goshen Bluowater | Land Parcell (| <u>099717</u> | <u>201 </u> | rbine# id Tkne: | 1000 10:49 | |
|--|-------------------|---|------------------------------|----------------------------|--|---|---|-------------|
| Weather Condition | | (Car.) 1015 | 3 | Field Notes 8 | | | - 11 111 | |
| <i>0</i> 46% | and, d | at Gordina | Site Lo | cation | | | | |
| | | | UTM Co- | ordinates | - | | | |
| Easting: | | | | | De | scriptio | r <u>i;</u> | |
| Easting: | | Northing:_ | | | D | scriptio | <u>n:</u> | |
| Easting: | | Northing: _ | | | C | escriptio | M): | |
| Easting: | ounding La | Northing: nduse/Follution Source | <u> </u> | | | escription | n: Intercourse | |
| Residential Agriculture Forest Other: | | Meadow 🖸 Wetland 🖺 Livestock 🖺 | | Pe | rmittent rmanent ihemerat | | Channelized Natural Channel | 13 |
| | | i Water Quality | .ce 1/c | A Char | | ound We | ter indicators | · · · · · · |
| | | | | | | sund We | ner indicators Bank Seepege | |
| | h-8h | u Water Quality | | | Gre Vatercress ron Staining | . ta⁄ | Bank Seepege None | |
| WT (°C): 8.0 | h-8h | u Water Quality | | | Ģe: Vatercresa | <u>\$</u> | Sank Seepege | = |
| WT (°C): 8.14 pH: 8.14 Water Clarity: | ln-6h | AT(*C): () () () () () () () () () () () () () | , ភូប ច | 11 | Gre Vatercress ren Staining Jubbling | . C C C C C C C C C C C C C C C C C C C | Bank Seepege None | |
| WT (°C): 8.14 Water Clarity: Notes: (0) V (°Y*) | Clear Clear | AT(*C): (2 5 Cond (1) s/cm): (2 5 Turbid | Streen M | orphology | Gravatercress ren Statning Subbling | . C C C C C C C C C C C C C C C C C C C | Bank Seepege None | |
| WT (*C): 8.16 Water Clarity: Notes: (0) | Clear Clear | AT(*C): (2 5 Cond (1) s/cm): (2 5 Turbid | Streen M | . dla. | Gravatercress ren Statning Subbling | | Bank Seapage None Other | |
| WT (°C): 8.14 Water Clarity: Notes: (0) V (°Y*) | Clear Clear | AT(*C): (2 5 Cond (1) s/cm): (2 5 Turbid | Streen M | orphology | Graver State of State | . C C C C C C C C C C C C C C C C C C C | Bank Seapage None Other | 00 |
| WT (*C): pH: 8.16 Water Clarity: Notes: 0 V(**) Site Length (m): Channel Dimen: Mean Wetted | Clear Clear | Water Quality AT(*C): () 5 Cond () s/cm): () Turbid W) () 4 () 7 () 7 () | Streen M | orphology | Graver State of State | Slightly | Bank Seapage None Other | |
| WT (*C): 8.14 Water Clarity: Notes: (0) V (***) Site Length (m): Channel Dimen | Clear Clear Clear | Mean Bankfull Width | 2 2 2 : an 3train M | orphology Bank Stabilit | Gravatercress ren Staining Subbling Substaining Stable | Slightly | Bank Seapage None Other Moderately unstable | Unstable |
| WT (*C): pH: 8,14 Water Clarity: Notes: 0 V (***) Site Length (m): Channel Dimen Mean Wetted Width (m): Mean Wetted | Clour (100) | Mean Bankfull Width (m): | 2 2 2 : an 3train M | orphology Bank Stebilin | Graver Valor Cross Stabiling Sylvator Cross Stabiling Stabiling | Silightiy | Bank Seapage None Other Moderately unstable | Unstable |

| | | | | | | Page 2 of 4 |
|--|------------------------|--------------|-------------|------------------------|------------------|---|
| | | | | ream Morpho | Hogy (continu | ed) |
| patrete (< * >) So - Boulder Co - Cobble Gr - Gravel Sp - Sand Si - Sill CI - Clay MK-Muck DT-Detritus Other | Beacription Sa. | _ | • | | Notes: | Morphological Structure (%) Pool Riffle Run Flat |
| | | ·· | | - н | sbitat | |
| None | (%) Woody Debris | Boulders | Cobble | Aquetic Vegetation* | Undercut Bank | Other: |
| | 5% | | 10% | 80% | / | |
| 90-60% 60-30% Notes: | <u>H</u> ∤0<5√(| Altas | ,3769 | L | | Shrubs () Man-made structures () Other |
| Obs | tructions to | Fluir Passe; | | 1 | Drail | nage Features within Study Area |
| No Obstructio Natural Description: (201 | ched | | | Observation (| ins of Land T | opography within 120 m buffer area: |
| No 1 | 9.0 | | | | | |



Other General Commente Regarding the Study Area:
- Cattrallo of Wiccers Historyhead Charles
- Charles to records leviers - no uto Charles
Lythle decient

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| ato: NOV 17 | Start time: | DO End Time: 0 55 |
|---|--|--|
| eather Conditions: | ast, light snow | Field Notes By: SA |
| | | Site Location |
| | ** | |
| | | |
| | U | TM Co-ordinates |
| Easting: | Northing: | Description: |
| 7.0000000000000000000000000000000000000 | g Landuse/Pollution Sources | Type of Watercourse |
| Residential Agriculture | Meadow Wetland | Intermittent |
| Forest | Livestock 🔯 | Ephemeral 12 |
| Other: | uts into the system i.e. tile drainage | seemens overland flow) |
| WT (*C); | AT(*C): Cond (s/cm): | Watercress □ Bank Seepage □ Iron Staining □ None □ |
| Water Clarity: Cle | | Bubbling 🗀 Other 🖂 |
| Notes: | 7F) 555 /ANDRES 155 | ` |
| | | |
| | | |
| | 81 | treem Morphology |
| Site Length (m): | | Bank Stability: |
| Channel Dimensions | | Stable Slightly Moderately Unstable unstable |
| Mean Wetted Width (m): | Mean Bankfull Width | Left Bank |
| Mean Wetted Depth (m): | Mean Bankful Depth (m): | Right Bank 🗆 🗆 🗆 |
| Flow Description: | | |
| | | |
| | | |
| Notes: | Records Review Change | |

| AECOM | | | | | | | | Page 2 of 4 | ŀ | |
|---|-----------------|----------------|----------|------------------------|------------------|-------------|----------------------|--------------------|-------|-------------|
| | | - | 96 | sem Marpho | Rogy (contin | ned) | | | | |
| batrate (< # >) Bo - Boulder Co - Cobble Gr - Gravel Sa - Sand Si - Silt CI - Clay MK-Muck DT-Defrius Other | Description | | | | Notes: | Pool | erphologic Ryffle | al Structon Run | Fint | |
| | <u></u> - | | | | <u>L</u> | | | - | | |
| stream Cover (| (%) | | | | | | | | | |
| None | Woody Debrie | Boulders | Cobbie | Aquatic Vegetation* | Undercut Bank | | | Other: | | _ |
| | | | | | | • | | | | |
| Canopy Cover | (% closed co | 787): 30-1% | ::3 | Types of Co | over (% cove | Shrub | | Man- | tures | |
| 90-60% 60-30% | | 0% | Ш | Grass |)\$ | Herbace | | | Other | |
| Notes: | inuctions to | Figh Passeo | <u> </u> | | Dra | Inage Fuel | ures withl | n Study Art | | |
| No Obstructio | | Man-Mad | | Observation | ons of Land ' | lopography | y within 17 | 20 m buffer | ares: | |
| Description: | | | | | | | | | | |
| | | | | | | | | | | |
| | | . <u>.</u> | | | | . <u></u> . | | | | |
| Terrestrial fe | atures Press | res Yes | No | | | | | | | |
| Vernestrial Rec | on Form Filled | out Yes | No | | | | | | | |
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AECOM Page 3 of 4

Other General Comments Regarding the Study Area:

Spring or high rain events
-vin difficult Channel in agri Field - Studie like
- features

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| Picture # | Description | Picture # | Description |
| Transfer of the second | South | | · · · · · · · · · · · · · · · · · · · |
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| 12 | 105 | | |
| 13 | west. | | |
| 18 | View of when | | |
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Reconnaissance Assessment Record

| roperty ID: 1001 P1 + P2 | Date: 17/11 |
|--|---------------------------------|
| Property Access: (OO) | Start Time: |
| Field Investigators: SA TS | Weather: OVEV Cast |
| Terrestrial Feature Present: No Yes | |
| | - Records Review |
| Aquatic Feature Present: No Provide breif description (i.e. drainage ditch, watercourse, interest in the second se | termittent, permanent) |
| no permanent connections | onnectivity |
| Photograph Numbers: 12 nov W 3 4 | South 4-West 5-North 12 - South |

| | | | | General II | nformation | eld Crew: | | | |
|--|---------------------------|----------------------------------|--|---------------------------------------|--|---|-------------------|---|--------------|
| Study Area: | Jaricho | Goshen | Bluewater | and Parcell | 1065 | T | urbine # | -050 | <u> </u> |
| ate: Nov | 1997 | | Start time: | 11.51 | - 102022 | | nd Time: | | |
| | | | · . | | Field Notes B | | | (| - |
| Mather Constitution | ne: رين دران | . Where | ર્ત્યુ | | FIERD MOIDE D | 5 4 | | | |
| 000 | , , , , , , | . 10 | , | | | | | | |
| · · | 1 3.75 | | 0 | Site L | ocation | | | | <u> </u> |
| local ea | '' (7. | 81. H | (A) | (5.20-3) | | | | | |
| | | | | UTM Co- | ordinates | | | | |
| Easting: | | | Northing: | | | | escriptio | n: | |
| Easting: | | | | | | | escriptio | ı h ; | |
| Easting: | | | Northing: | | | | escriptio | M: | |
| Easting: | | | Northing: | | | ŧ | escriptio | | |
| Burr | ounding Lar | nduse/Pollut | ion Source | 6 | | | Type of W | elercourse | |
| Residential | 물 | Meadow Wetlend | | | | rmittent rmanent | 끊 | Channelized Natural Chann | |
| Agriculture Forest | 5 | Livestock | ថ | | | hemeral | تق | Material Chark | |
| Ither: | | | | | | | | | |
| | in-Sin | ı Weter Oue | lity | | 1 | Q ₄ | ound We | ter indicators | |
| | in-Situ | u Water Chus | | | | | | ter indicators | |
| MT (°C): 4 | in- Sit | AT(°C): | <u>2,5,'c</u> | · · · · · · · · · · · · · · · · · · · | 4 | Vatercress | • ⊠. | Bank Seepa | 0• □ |
| мт (°С): Ц | in- Sit . | , | <u>2,5,'c</u> | <u> </u> | <u> </u> | Vatercress ron Staintr | ™ □ | Bank Seepa None | •• <u>[]</u> |
| 72 13 | In-Situ | AT(°C): | <u>2,5,'c</u> | <u>jl</u> | <u> </u> | Vatercress | • ⊠. | Bank Seepa | 0• □ |
| Water Clarity: | (30 1 | AT("C): Cond () / s/ | 2,5'c | | <u> </u> | Vatercress ron Staintr | ™ □ | Bank Seepa None | •• <u>[]</u> |
| ьн : | (30 1 | AT("C): Cond () / s/ | 2,5'c | | <u> </u> | Vatercress ron Staintr | ™ □ | Bank Seepa None | •• <u>[]</u> |
| Water Clarity: | (30 1 | AT("C): Cond () / s/ | 2,5'c | | <u> </u> | Vatercress ron Staintr | ™ □ | Bank Seepa None | •• <u>[]</u> |
| Water Clarity: | (30 1 | AT("C): Cond () / s/ | 2,5'c | <u>jl</u> u | <u> </u> | Vatercress ron Staintr | ™ □ | Bank Seepa None | •• <u>[]</u> |
| Water Clarity: | Clear | AT("C): Cond () / s/ | 2,5'c | <u>jl</u> u | 11 E | Vatercrees ron Stainle Subbling | ™ □ | Bank Seepa None | •• <u>[]</u> |
| Water Clarity: Notes: | Clear | AT("C): Cond () / s/ | 2,5'c | <u>jl</u> u | Morphology | Vatercrees ron Stainte hubbling | Slightly | Bank Seepa None Other | |
| Water Clarity: Notes: Site Length (m): | Clear | AT(°C): Cond ()/al | 2,5°C (cim): C.S Turbid | Streets | Morphology Bank Stabilit | Vatercrees ron Stainte Bubbling by: Stable | Slightly unstable | Bank Seepa None Other Moderately unatable | Ge [] |
| Water Clarity: Notes: Site Length (m): | Clear | AT(°C): Cond ()/al | 2,5°C (cim): C.S Turbid | Streets | Morphology | Vatercrees ron Stainte hubbling | Slightly | Bank Seepa None Other | |
| Water Clerity: Notes: Site Length (m): Channel Dimen Mean Wetted Width (m): | (20 1 Clear 0,73 | AT(*C): Cond (j / si \$\int 2\) | 2,5°C cim): C ^c Turbid | Stream) | Morphology Bank Stabilin | Vatercrees ron Staining hubbling ty: Stable | Slightly unstable | Moderately unatable | Ge [] |
| Water Clarity: Notes: Site Length (m): Channel Dimen Mean Wetted | (20 1 Clear 0,73 | AT(*C): Cond (j / si \$\int 2\) | 2,5°C cim): C ^c Turbid | Streets | Morphology Bank Stabilit | Vatercrees ron Stainte Bubbling by: Stable | Slightly unstable | Bank Seepa None Other Moderately unatable | Unatable |
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| wт (°C): 7. (, | | AT(°C): | | - 1 · · · · · · · | atercres | . 🗀 | er Indicators Bank Seepage | |
| wт (°C): 7.6 pH: 7.59 | | 7 | 92 | - In | atercress on Stainin | . 🗆 | Bank Seepage None | 123 . |
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| | | | Str | eam Morphol | ogy (continued) | | |
| trate (< = >) - Boulder - Cobble - Gravel a - Sand Si - Sin | Description | | | | Poo | Morphological Structure (%) Riffle Run Flat 25 75 | - - - - |
| | sı > c | 8/bonlde | ر> دل | | | - flow | |
| eam Cover | m 50 | | | He | bitat | | |
| None | Woody Debris | Boulders | Cobble | Aquetic Vegetation | Undercut Bank | Other: | |
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| 100-90% | (% closed co | 30-1% | ;; | Tree | 3 4 | Shruba / Ø Man-made structures , | |
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| 100-90% 90-60% 60-30% otes: | <u> </u> | 30-1% | L | Tree | iver (% cover) is S | Shruba Ø Man-made structures Other Other | |
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| er General Comments Regarding the Study Area: | |

Other General Commente Regarding the Study Area:

- Stream has slight meander

- debits brist of up in stream

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| Study Area: Jericho Goshen Bluewater Land P | Parcel# (4.01024 Site ID: Turbine 14-C14 |
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| eather Conditions: $\sqrt{9}$ Start time: $\sqrt{9}$ | Field Crew: C. Boros , S. Leviss |
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| Other | Ephemeral 🗔 📜 🖽 |
| In Court processing and in | Description: |
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| neger Applica | si atmally |
| ites: (include any inputs into the system i.e. tile drainage, se | epages, overland flow) |
| any portion of the water body underground or not as mappe Yes describe: ωωλεικείται με της καργάζα α | 5 H Wads South thrugh the forest |
| PS Coordinate: Easting - 1997 8438 Northin | ng - 4名2g575 Description- ジャルス (マルバス・(テルバス・ ter Body (rolling hills, sloping towards water body) |
| Description of Land Topography Surrounding Wa | ter Body (rolling hilfs, sloping towards water body) |
| Slightly rolling tills | |
| л (°C): _/2,58 | Watercress ☑ Bank Scepage ☐ |
| H: 8,93 Cond (Ms/cm): 5 64 | Iron Staining 🗀 None 🗀 |
| <u> </u> | ·· -: |
| | Bubbling 🖺 🗓 |
| I.O. (mg/L) 역, 8 <u>·3</u> Water Clarity: Clear 전 Turbid 전 | Other 🗀 |
| Water Clarity: Clear 전 Turbid 단 | |
| Water Clarity: Clear ⊠ Turbid ∰ Water Colour: A /A | Other 🗀 |
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| Water Clarity: Clear 전 Turbid 년 | Other 🖸 |

| Site Length (m) | 35VP | <u> </u> | V | <u> </u> | Bank St | lability: | · · · · · · · · · · · · · · · · · · · | · · · · · · · · · · · · · · · · · · · | | ·: |
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| Channel Dimen | | | | | | Stable | Slightly | Moderately | | |
| Mean Wetted | sions | r —— | | | | | unstable | unstable | Ousmole | |
| Width (m): | <u> 0.</u> 4 _ | Moan Wetter | Depth (m): | 4.07 | Lef Bank | لينه | | Ľ | | |
| Mean Bankfull Width (m): | 2.5 | Me <u>an Ban</u> kfu | ıl <u>l De</u> pth (m): | 10.2 | 1 | ank | ü | | | |
| Mean Top of Bank Width (m): | | Mean Top of | | | i Descript | tion: Well | ر سون | Lant- | | |
| Flow Description | n: (high or low | flow condition | ons, stagna | nt, etc) | | | | | | |
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| Substrate (< = > Bo - Boulder Co - Cobble Gr - Gravel | Description | | | | | | rphologic Riffl e | al Structure Run | (%) Flat 9 0 | |
| Sa - Sand Si - Sift CI - Clay MK-Muck | 51, dt | <i>⇒></i> | , sand, | yr . | Notes: | · · | | |] | |
| DT-Detritus Instream Cover | (%) | | _ | <u></u> | | | | | | |
| Other | Woody Debris | Boulders | Cobble | Aquatic | None | Undercut | Ranko | _ | | |
| let 1. has | | | | Vegetation* | MOUR | Average De | | | | |
| () Note: Low = 0 - 3 | 10 | | 5 | 5 | | (% Cover) | pw. | | | |
| | ەس رىغى | der (coss | | nergent atc.) | | | | | | |
| Canopy Cover (% | 6 closed cover |): | | Types of Cov | er (% cot | ver) | | | | |
| 100-90% | 6 23 | 30-1% | | Trees | ^ | Shruba | | Man-made | | |
| 90-60% 60-30% | <u> </u> | 0% | u ļ | Grasses | (1)2 | Shrubs _ Herbaceo | | structures Other | | |
| Note: Low = 0 - 3 | 0%; Moderate | = 30 - 60%; | High = 60 - 1 | 100% | | | —·, —— | | | |
| Notes: (vegetatio | on species, typ | es of structu | res) | | | | | | | |
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| Riparian Vegetat | ion – | | — | · | | | | | | |
| Width of riparian | vegetation: _{ji} | n bewal | 7 R 6 11 | , ve | Jedg | s of be | . fr.k. < | 200 | | |
| Description of ve | egetation comm | nuity surroun | iding 30 m f | rom watercou | ırse: & | + keve | agri | frede | | |
| <u> </u> | | | | i digira | | | | | | |
| No Obstructions | ₽(| Man-Made | | Natural | | Low Flow | Barrier | | | |
| Description of B | arrier: | | | | | | | | | |
| Height of Barrier | (m) | | | | GPS Coo | rdinates: | | | | |

| AECOM | Date: Apr. 1 19/12 | Land Parcel/Site ID: BCIN 1624 | Page 3 of 4 |
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| | ts Regarding the Study Area: | | |
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| tudy Area: | Jericho | Goshen | Bluewater_ Land i | Parcel# <u>&Lv 162</u> | A Site ID | Turbine | 19 |
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Appendix D

Weather

| Month | Day | Max Temp (°C) | Min Temp (°C) | Mean Temp (°C) | Total Precip (mm) |
|-----------|-----|---------------|---------------|----------------|-------------------|
| July | 3 | 22.4 | 13 | 17.7 | 0 |
| | 4 | 22.2 | 11.2 | 16.7 | 0 |
| | 5 | 27.1 | 11.9 | 19.5 | 0 |
| | 10 | 28.7 | 19.8 | 24.3 | 0 |
| | 11 | 28.6 | 20.5 | 24.6 | 0 |
| | 12 | 26.1 | 17.4 | 21.8 | 0 |
| | 24 | 27.1 | 19.9 | 23.5 | 0 |
| | 25 | 23.5 | 19.6 | 21.6 | 0 |
| | 26 | 22.8 | 12.5 | 17.7 | 0 |
| | 27 | 23.6 | 11.1 | 17.4 | 0 |
| | 28 | 25.7 | 19.9 | 22.8 | 19.9 |
| | 29 | 25.8 | 16.9 | 21.4 | 10.1 |
| August | 7 | 25.6 | 18.8 | 22.2 | 15.8 |
| | 8 | 24.6 | 16.9 | 20.8 | 0 |
| | 9 | 23.7 | 18.3 | 21 | 1.7 |
| | 10 | 21.2 | 16.9 | 19.1 | 7.1 |
| September | 26 | 23.1 | 16.2 | 19.7 | 12.9 |
| | 27 | 20.3 | 12.4 | 16.4 | 3 |
| | 28 | 22.3 | 11.8 | 17.1 | 0 |
| October | 3 | 12.6 | 8.8 | 10.7 | 4.9 |
| | 4 | 15.8 | 4.7 | 10.3 | 0 |
| | 5 | 18.9 | 5.7 | 12.3 | 0 |
| | 10 | 24.2 | 8.8 | 16.5 | 0 |
| | 11 | 26.6 | 10 | 18.3 | 0 |
| | 12 | 19 | 13.3 | 16.2 | 13.1 |
| | 23 | 16.6 | 2.7 | 9.7 | 0 |
| | 24 | 13.1 | 8.5 | 10.8 | 2.4 |
| | 25 | 10.1 | 3.8 | 7 | 10.9 |
| | 26 | 8.3 | 3.7 | 6 | 0 |
| November | 1 | 12.5 | 5.1 | 8.8 | 0 |
| | 2 | 17 | 7.9 | 12.5 | 0 |
| | 3 | 12.4 | 2.1 | 7.3 | 0 |
| | 4 | 9.2 | -0.8 | 4.2 | 0 |
| | | | | | |
| | 15 | 11.9 | 5.7 | 8.8 | 0 |
| | 16 | 10.1 | 2.4 | 6.3 | 0 |
| | 17 | 2.9 | -0.2 | 1.4 | 0 |



Appendix E

Project Team CVs



Sarah Aitken, B. Sc. Hon., ET Diploma Aquatic Ecologist

Professional History

2008 - present, AECOM, Aquatic Ecologist

2007 – Kawartha Lake Conservation, Fisheries Technician

2004-2006, Gartner Lee Limited, Environmental Technologist

2004 – Credit Valley Conservation, Water Resources Assistant

Education

Environmental Technology, Sir Sandford Fleming College Lindsay, ON 2001 – 2004

Environmental Resource Science (Honours) Trent University Peterborough, ON 2006 – 2008

Years of Experience

With AECOM: 5

With Other Firms: 1

Training

MTO/DFO/OMNR Fisheries Protocol Training for Consultant Fisheries Specialists – January 2010

Canadian Pleasure Craft Operator

WHMIS Training

Fall Arrest Training

Ontario Benthos Biomonitoring Network Certification Course, Ministry of the Environment, April 2005

Electrofishing Certification Level 2 Backpack, September 2010 Sarah Aitken is an Aquatic Ecologist with AECOM. She has over five years of experience in the environmental field in both the public and private sector. Since joining AECOM in 2004, Sarah has worked on a diverse range of projects including environmental monitoring projects, projects involving storm water management pond monitoring, environmental impact studies, large-scale dewatering projects, and several EEM mining programs and lake management studies. Sarah has co-ordinated and implemented a variety of ecological and water resource monitoring activities for various projects and also has experience collecting benthic invertebrates, fish sampling and conducting detailed fish habitat information. She has experience in the collection and analysis of water quality data, stream assessments, various lake sampling techniques, installation of a variety of surface water field equipment, and report writing.

EXPERIENCE

Experience with various lake sampling techniques, including sediment coring, bathymetry, benthic invertebrate sampling, water quality and lake profiling for Brampton Lakes and Fairy Lake.

Completed several Fish community and biomass surveys for various projects including EA's and EIS studies. This included the use of different equipment including; backpack electrofisher, gill nets, hoop nets and minnow traps. Sarah has contributed technical advice to the permitting and approval process of several projects.

Completed several construction monitoring projects including site inspection, fish capture and relocation and turbidity monitoring. Conducted various water quality sampling programs for both surface water and groundwater systems. Also completed detailed analysis and report preparation with these results.

Sarah has coordinated and implemented several Environmental Effects Monitoring (EEM) programs for several mining projects.

Lake Management Studies

Fairy Lake Water Quality Study, Acton, Ontario (2008-2009)

Sarah coordinated and completed field work analysis of a small urban lake including low flow and rain event sampling, dissolved oxygen lake profiling, water quality measurements and sediment core sampling. She compiled and analysed field data and assisted in the preparation of the final report. Sarah also helped determine options for enhancing the quality of the lake for the client and nuisance geese management options.

Standard First Aid with CPR Level A, June 2008

Gartner Lee Centres of Excellence – Fisheries Methods Course, June 2008

Lake Management in a Changing Environment, North American Lake Management Society Conference, November 2008

Taxonomy, Ecology and Control of Nuisance Algae, Pre-conference Workshop, North American Lake Management Society, November 2008

Fish Identification Workshop - Royal Ontario Museum (2009)

Citywide Lake Assessment/Management Study, Brampton, Ontario (2004-2006)

Sarah participated in an extensive monitoring program to collect water quality, fish community data and habitat ecology for several urban lakes within the City of Brampton. Sarah assisted in the data organization and report writing, as well as answering client comments.

West End Community Centre, DFO Compliance Monitoring, Guelph, Ontario (2008-2009)

Project manager for a pond monitoring study (2008-2009) resulting in management recommendations for improvements to water quality, mitigation of nuisance wildlife and suitability of fish stocking. Sarah conducted pond profiling and captured and re-stocked pond with select species.

Woodbine Racetrack Water Quality Monitoring, Etobicoke, Ontario (2004-2006)

Sarah completed monthly surface water quality sampling from various stormwater ponds and the receiving waterbodies.

Fisheries and Fish Habitat Assessments

Walpole Island First Nation, Walpole Island Dredge Cut Restoration Project, ON (2009-2010)

Conducted a feasibility study that included assessments of sediment and water quality in order to develop a strategy to restore 14 linear kilometres of aquatic habitat around Potawatomi Island.

Squirrel Island Bridge Replacement, Walpole Island, ON (2009)

Aquatic investigations were undertaken to aid in the assessment of potential effects of a bridge replacement on Squirrel Island between River Road South and Squirrel Island Road. Detailed background view and fish habitat mapping was conducted.

Mississauga Road Widening – Huttonville Creek, Mississauga Ontario (2010-Present)

Sarah contributed technical advice to the permitting and approval process for an ESA required permit. This involved the evaluation of different alternatives and their associated impacts and benefits analysis. Sarah also assisted in developing rationale for the different alternatives and compensation plans.

City of Guelph, Arkell Springs Creek AMP Monitoring, Eden Mills Ontario (2008-2009)

Monitored the effects of a long-term pumping project on a coldwater trout stream. Sarah collected data including stream velocities, surface and groundwater interaction, fisheries community information, redd surveys and aquatic habitat assessments.

Monora Creek, Brook Trout Biomass Survey, Ontario (2004-2009)

Conducted annual biomass surveys and spawning surveys to determine if there was an impact on fish populations from groundwater extraction. Temperature monitoring and stream flow monitoring was also conducted on a monthly basis. Sarah also coordinated and prepared annual reports for the client.

City of London, Storm Drainage and Stormwater Management Facility and Servicing - Class Environmental Assessment, White Oak Area, London, Ontario.

Collected aquatic habitat and reconnaissance level fish species presence data from White Oak drain and tributaries and provided recommendations for stormwater management implications. [2009]

Blockline Environmental Impact Study, Kitchener, Ontario (2009-Present)

Sarah collected detailed fish habitat information in Schneider Creek for the Preliminary Design Brief for the extension of Block Line Road from Hanson Avenue to Courtland Avenue East. Sarah assessed the significance of Schneider Creek, the present constraints and opportunities, the potential impacts anticipated as a result of the proposed road extension and provided an Environmental Management Plan for the protection and management of Schneider Creek.

TTC – 407 Subway Station, Toronto, Ontario (2009)

Sarah collected detailed fish habitat information according to the MTO/DFO Fish Habitat Protocol. Fish community surveys were also conducted the length of the study reach.

Waterloo LRT Environmental Impact Study, Region of Waterloo, Ontario (2009-2010)

Conducted detailed fish habitat assessments of all identified watercrossings in study area, specifically looking at crossing locations and downstream habitat. Sarah conducted fish community surveys by electrofishing and minnow traps and assessed the significance of all the watercourse crossings, the present constraints and opportunities, the potential impacts anticipated and mitigation techniques to protect the watercourses.

Environmental and Construction Monitoring

Design-Build of the Elgin Area Primary Water Transmission Main Twinning, Ontario (2010-Present)

Sarah played a large role in coordinating and implementing the field work which included detailed assessment of all potential watercourse crossings, collection of fish habitat information and fish community studies. Sarah maintained contact with regulatory agencies and compiled a detailed report submitted for agency approval. She also worked with Transport Canada to obtain Navigable Waters approvals.

York Region Sanitary Sewer Installation – 16th Avenue, Markham, Ontario (2004-2006)

Sarah coordinated field schedules and implemented field programs for the 16th Avenue Projects, which included stream flows, groundwater levels, maintenance of stream loggers, site investigations, water quality sampling and fish sampling. Sarah was also responsible for peer reviewing data collection from other consulting firms and auditing site selections. She was responsible for organizing high quality field notes for project records, developing rating curves, creating a database for data storage and preparing reports for the client.

York Region Sanitary Sewer Installation – 9th Line, Stouffville, Ontario (2004-2006)

Sarah played a large role in completing a long-term monitoring program which monitored the impacts from dewatering on a coldwater Brook Trout stream. Weekly stream flows, groundwater levels, maintenance of stream loggers, construction monitoring, water quality sampling and fish sampling. She was responsible for data collection and organization, developing rating curves and preparing reports for the client. Sarah also maintained relationships with sub-consultants and the client.

York Region Sanitary Sewer Installation – King Road, King City, Ontario (2004-2006)

Sarah coordinated and implemented field programs for the King Road sanitary sewer installation, which included stream flows, groundwater levels, construction monitoring, wetland monitoring, and site investigations. She was responsible for the taking and organizing field notes for the project records and preparing reports for the client.

Puslinch Culvert 93 Replacement, Puslinch, Onatio (2010)

Coordinated and assisted in construction monitoring of silt fencing and channel removal. Helped develop and implement a fish capture and relocation plan during construction phase.

Huron County Culvert 86-19.7 Bridge Replacement, Huron County, Ontario (2010)

Coordinated and assisted in construction monitoring of silt fencing and channel removal. Helped develop and implement a fish capture and relocation plan during construction phase.

Mining Projects

Liberty Mines, McWatters Mine, Ontario (2010-Present)

Completed an adult fish survey and detailed habitat mapping to fulfill the regulatory requirements of the EEM Cycle 1 program for assessing impacts on the aquatic environment from mine effluent for the EEM program. Assisted in completing the reports for agency review.

FNX Mining, Podolsky Site, Ontario (Fall 2009)

Provided technical support for the fall field program of the EEM Cycle 1 for the Podolsky Mine Site. Conducted an adult fish survey, benthic invertebrate sampling, as well as sediment and water quality sampling to meet the requirements of the EEM program.

Kirkland Lake Gold, Ontario (2008)

Completed an adult fish survey, benthic invertebrate, sediment and water quality sampling to fulfill the regulatory requirements of assessing impacts on the aquatic environment from mine effluent for the EEM program.



Caroline Boros, Honours B. Env. Sc. Aquatic Ecologist

Professional History

2007 - present, AECOM, Aquatic Ecologist

Grand River Conservation Authority Water Quality Technician Cambridge Ontario 2006 – 2007

Hamilton Conservation Authority Water Resource Technologist Assistant Ancaster Ontario 2004 – 2005

Education

Honours Bachelor of Environmental Science University of Guelph 2000 – 2004

Ecosystem Restoration Graduate Certificate Niagara College

Years of Experience With AECOM: 5

With Other Firms: 2

Caroline is a graduate of the University of Guelph Honours Environmental Science degree program and is currently working as an Aquatic Ecologist for AECOM (formerly Gartner Lee Limited) with over four years experience in the field. She has an excellent background in the aquatic sciences, specifically with ecosystem restoration and habitat assessment.

EXPERIENCE

Ecological Assessment and Monitoring

Walkers Aggregates Inc., Aquatic Ecology Monitoring Program, Thorold (2007 – 2011)

Collection and management of surface water and aquatic data to assess impacts on streams due to quarry activities. The investigation includes surface water flow monitoring, benthic macroinvertebrate community assessment, and fish community and habitat assessment. Participate in formal responses to various provincial agency technical comments as it pertains to submitted reports for on-going compliance of permits.

Township of Brock, Blackwater Bridge Replacement Environmental Impact Study, Brock (2010 – 2011)

Conducted fish habitat assessment and fish community survey to document existing conditions and identify potential impacts as a result of the proposed bridge replacement. Ongoing consultation with local conservation authority to determine mitigation and compensation measures for the potential bridge design.

Clean Harbors Canada Inc., Natural Environment Assessment, Petrolia (2011)

Completed a natural features assessment in support of the Environmental Assessment document for the potential expansion of the landfill. Field investigations included fish habitat and community assessments in surrounding areas, and bird surveys for onsite woodlots.

Walpole Island First Nations, Dredge Cut Restoration, Walpole Island (2011)

Assisted in the desktop background research, data compilation and interpretation and summarized the water quality, and fish habitat and community findings in the report.

Town of Innisfil, Lakeshore Water Treatment Plant Expansion Municipal Class Environmental Assessment (2010)

Completed fish habitat and fish community assessments, including fish habitat assessment in the lake using live underwater video feed (using scuba divers and a dive boat). Prepared field data results and potential impacts to fisheries in the respective sections in the final report.

Town of Fort Erie, Bridge Replacement: Fish habitat and community assessment, Fort Erie (2010)

Completed a fish habitat and fish community assessment as part of an Environmental Assessment for two proposed bridge replacements in the township. Prepared a memo which included the characterization of the relative risk for the proposed works within the DFO Risk Management Framework.

Walkers Aggregates Inc., Ten Mile Creek Re-alignment Monitoring, Thorold (2007- 2009)

Conducted post-construction monitoring and reporting of fish habitat and community for a re-aligned stream in order to comply with Department of Fisheries and Oceans (DFO) authorization.

Walkers Aggregates Inc., Permit to Take Water: Aquatic Ecology Monitoring, Ridgemount (2009)

As part of the reapplication process for a Permit to Take Water (PTTW) a potential stream re-alignment assessment was completed. The investigation included surface water flow monitoring, temperature monitoring, benthic macroinvertebrate community assessment, and fish community and habitat assessment.

Surface Water Monitoring

Clean Harbors Canada Inc., Surface Water Investigation, Petrolia (2011)

Involved in an off-site surface water investigation for a waste transfer facility which includes wet weather sampling events, water level monitoring (using loggers), and sediment sampling. On-going monitoring for 2011 with a final report to be completed at the end of the year.

Décor, Surface Water and Operations and Maintenance Monitoring, Hamilton (2009- 2010)

Project Manager. Co-ordinated field investigations and monitoring for the Certificate of Approval for their surface water monitoring, and operations and maintenance monitoring. Prepared quarterly reports for Ministry of Environment review which examined water quality conditions on site.

Clean Harbors Canada Inc., Assimilative Capacity Study, Mississauga (2010)

Responsible for collecting the surface water quality samples and stream flow measurements used to assess the assimilative capacity of the onsite discharge to the down gradient stream.

Groundwater Monitoring

Confidential Private Company, Remediation monitoring, Cambridge (2007 – 2011)

Site is TCE impacted and has a purge water containment program in place. Assisted in remediation program initiation through groundwater well development, groundwater sampling, hydraulic conductivity testing, water level measurements, and PID measurements. Also participated in the monitoring program during the in-situ chemical oxidant injections.

Clean Harbors, Compliance monitoring, Facilities- London, Niagara, Sarnia, Mississauga (2007 – 2010)

Involved in ongoing Certificate of Approval compliance monitoring for each of the facilities. Conducted field work which included: water levels, groundwater sampling, groundwater well development, surface water sampling, well recovery pump test.

CBM St. Mary's Cement, Permit to take water – Phase 1 pump test, Flamborough (2008)

Involved in the Permit to Take Water Phase 1 Pump Test conducted in the spring. Assisted in field work co-ordination and preparation for daily on-site meetings with the Ministry of Environment. On-site work included groundwater sampling, slug testing, logger calibration, logger installations, database management, piezometer installation in wetlands.

City of Guelph - Imico, Groundwater monitoring, Guelph (2007 – 2009)

Complete bi-annual monitoring on-site for the Certificate of Approval which includes water levels and groundwater sampling.

City of Guelph, Arkell Springs Aquifer Investigations, Guelph (2007) Involved in groundwater investigations including quarterly water levels, groundwater sampling, piezometer installation and monitoring, logger installations and logger data management.



Nicola Lower B.Sc., M.Sc., Ph.D Senior Fisheries Biologist

Professional History

09/2010 - present, AECOM, Senior Fisheries Biologist

10/2007 - 09/2010, University of Guelph, Post-Doctoral Research Fellow

01/1998 – 09/2007, The Centre for Environment, Fisheries and Aquaculture Science (cefas), Fisheries Biologist and Project Manager

Education

Ph.D, Fisheries Biology, 2007, The University of Portsmouth, UK.

M.Sc. (with Distinction), Natural Resource Management, 1998, The University of Leicester, UK.

B.Sc.(Hons), Environmental Life Science, 1996, The University of Nottingham, UK.

Years of Experience

With AECOM: 1

With Other Firms: 12

Professional Affiliations

City of Guelph River System Advisory Committee

American Fisheries Society

Society of Environmental Toxicology and Chemistry

Winston Churchill Fellow

British Science Association

Training

MTO/DFO/OMNR Fisheries Protocol Training for Consultant Fisheries Specialists – January 2011 Dr. Lower is a Senior Aquatic Biologist with over 12 years professional experience in fisheries and natural resource management. Nicola has delivered project reports for a variety of clients and has work experience in the private, public and academic sectors. Dr Lower has published research on a range of factors affecting fish populations, including barriers to migration, water quality, and invasive species in the Great Lakes. Dr Lower has conducted research for the Great Lakes Fishery Commission and serves as a peer-reviewer for a number of International scientific journals. Nicola has much practical experience in fisheries management and in the techniques used to assess and monitor habitat and fish populations, including radio-acoustic and PIT telemetry, backpack and boat electrofishing, and netting and trapping. Dr Lower was awarded a prestigious Canadian Commonwealth Post-Doctoral Fellowship to conduct research on the migratory biology of the sea lamprey and native fish species in the Great Lakes, and was presented with the Churchill Medallion by HM The Queen for her work on advancing a new technology aimed at improving the sustainability of aquaculture. In AECOM, Dr Lower contributes technical advice to environmental assessments and monitoring programs, and is skilled at coordinating and bringing environmental teams together for the purpose of providing a comprehensive study integrated with all relevant disciplines.

Experience

Métis Nation of Ontario. Technical review report on the migratory characteristics of species of interests (mammal, fish, birds) and potential development impacts and mitigation techniques.

Billiken Management Inc. Project Manager for mining client in northern Ontario for the proposed dewatering of the mine site. Responsible for environmental regulatory planning, baseline environmental surveys including water quality and integration of all relevant disciplines to provide a comprehensive work program.

Quadra FNX Mining Company Inc., Podolsky Mine Environmental Effects Monitoring, Sudbury, Ontario. Statistical data analysis, report writing, and overall project co-ordination for the Cycle 1 environmental effects monitoring (EEM) interpretive report, in accordance with the Metal Mining Effluent Regulations (MMER) under the *Fisheries Act*.

Liberty Mines, EEM Cycle Report, Northern Ontario. Lead author for a study the Cycle 1 report in accordance with Schedule 5, Section 10 – 14 of the 2002 Metal Mining Effluent Regulations of the *Fisheries Act.* Included data analysis and interpretation on the effects of effluents on aquatic populations.

Labrador Iron Mines, Houston, Howse and Road Corridor Baseline Studies, Schefferville, Quebec. Provided senior review for fish

communities and habitat assessments for three properties in Labrador outside of Schefferville, Quebec, to facilitate in acquiring various agency permits for proposed mining operations.

Region of Peel, Road Widening. Provided technical advice, and liaison with Project Team and MNR on the evaluation of culvert and bridge alternatives in order to protect fish habitat, including the Endangered Redside Dace (ESA 2007). Completion of ESA permit application, mitigation and compensation plans.

City of Guelph, Road Widening. Provided technical advice and worked with Conservation Agency to determine the impact of a culvert extension on fish habitat prior to Fisheries Act Approval.

Elgin Area Primary Water Supply System (EAPWSS), Authority Regulatory Approvals for the Elgin Area Primary Water Supply System, Elgin County, Ontario. Provided technical advice to the overall project team, Conservation Agency liaison as well as construction monitoring during a design and build operation to ensure compliance with permits and regulatory requirements.

Ontario Realty Corporation, Development Potential for land, Orillia. Conducted site assessments to determine ecological significance and development constraints, and produced the Environmental Impact Study.

Sifton Properties, Developmental Potential for land, City of London. Conducted due diligence study and identified environmental constraints and development opportunities.

City of Kitchener, City of London, City of Mississauga, Stream Restorations. Conducted fish habitat assessments and provided advice on stream rehabilitation and permitting requirements.

City of Burlington, Fish Removal Plan and Fish Habitat Assessment, Burlington, Ontario. Aided in the restoration of a stream system which encompasses realignment of stream segments and provision of erosion control techniques through completion of a fish habitat assessment and fish removal plan.

Post-Doctoral Research Fellow, University of Guelph, Ontario.

Great Lakes Fishery Commission / Department of Foreign Affairs and International Trade (DFAIT).

Led innovative research on the habitat use and migration patterns of sea lamprey that will be applied for practical management initiatives in the Great Lakes.

Led field research in tributaries of Lake Ontario around sea lamprey barriers. Research focused on understanding the migratory behavior of sea lamprey in streams and around barriers in order to increase the effectiveness of portable trapping techniques.



Presented research results and recommendations to the binational Government Agency, as well as the International scientific community.

Fisheries Biologist, The Centre for Environment, Fisheries and Aquaculture Science (cefas), Lowestoft.

Led multi-disciplinary monitoring and research projects investigating the factors regulating salmonid and freshwater fish populations, and provided advice to government and private clients on fisheries management. Project-manager for 'Diffuse pollution and freshwater fish populations'. Provided recommendations on the management of aquatic contaminants for the UK government client, the Department of Environment, Food and Rural Affairs.

Key scientist working on the chemical communication (pheromones) of freshwater fish. Commercial applications included feeding technology and invasive species control..

Joint inventor (of two) on patent for the application of fish feeding chemical cues which led to Joint Venture company between UK Government and private enterprise.



Andrea Dart

Environmental Technician

Professional History

01/2006 - present, AECOM, Environmental Technician

2005 - 2005, Nulmage Landscaping, Crew Member

2005 - 2005, Ministry of the Environment, Nutrient Management Specialist Assistant

2004 - 2004, Acorus Restorations, Native Wetland Nursery Supervisor

2003 - 2003, Ministry of Natural Resources, Surface Water Specialist's Assistant

Education

Diploma, Environmental Technology, Sir Sandford Fleming College

Training

40 Hour Hazwoper Training

RAQS Fisheries Contract Specialist

Certified Inspector of Sediment and Erosion Control

Excavation and Trenching Safety Awareness

Asbestos Awareness

Health and Safety Personal Protective Equipment Training

Working at Heights

Confined Space Entry

Confined Space Awareness

Ms. Dart is an environmental technician with over five years of experience in the environmental consulting business. She has been the lead field coordinator and team member for many large-scale projects. Ms. Dart has been responsible for managing compliance monitoring, environmental assessments, data evaluation, quality control, and liaison with subcontractors and the public. She has been the deputy project manager on multiple projects. She has written landfill, aggregate, and sections of environmental assessments and monitoring reports, as well as field methodologies. She has worked in headwater streams, rivers, lakes, wetlands, landfills, quarries, and contaminated sites. Ms. Dart is a member of the Woodlot Association, Willow Beach Naturalist Club, Friends of Presqui'ile Park, and became an Ontario Stream Steward in 2011. Within her first year at AECOM, Ms. Dart won the Top Contributor award.

EXPERIENCE

Regional Municipality of York, 16th Avenue Trunk Sewer Phase II, Markham, Ontario.

Lead field coordinator. Conducted streamflows and electrofishing. Collected surface water samples, field chemistry, wetland moisture measurements, benthic invertebrates, and temperatures. Installed mini piezometers and collected water levels. Worked with the telemetry system uploading data into database. Compiled data and created the graphical presentation for the monthly reports, created stage discharge curves, and wrote the surface water section. Organized the extensive field work and coordinated several employees. [2006-2010]

Regional Municipality of York, West Rainbow Creek Sanitary Sewer Project, Markham, Ontario.

Lead field coordinator. Conducted a mussel rescue, electrofishing, and streamflows. Collected water levels, surface water samples, field chemistry, temperatures, and monitored the discharge water quality. Compiled data and created the graphical presentation for reports. reated TSS and turbidity relationship curves and wrote sections of the report. [2009-2010]

Ministry of Transportation Ontario, 407 East Environmental Assessment and 407 East Foundation Design Study, Markham, Ontario

Lead field coordinator. Collected streamflows, water levels, field hemistry, temperature, surface/residential water samples, as well as hundreds of residential water well surveys. Conducted stream reconnaissance; installed and set up level loggers and barologgers, which were downloaded regularly and created detailed graphs with this information. Performed pump and hydraulic conductivity testing; developed boreholes and collected groundwater samples; compiled data and created the graphical presentation for reports; and organized II data into spreadsheet and graphs used for the report. [2008-2009]



Fall Prevention Training

WHMIS Training

CPR and First Aid Training

Transportation of Dangerous Goods Certificate

Operator in Training of Water Treatment

Operator in Training of Wastewater Treatment

Operator in Training of Water Distribution

Operator in Training of Wastewater Collection

Pleasure Craft Operator Certificate

Ontario Stream Assessment Protocol Certified with Level 1 Fish I.D

Years of Experience With AECOM: 5

With Other Firms: 3

NextEra, Wind Energy Centre, Natural Heritage Assessment Report. Grand Bend, Ontario.

Conducted extensive amphibian surveys throughout season and conducted rapid Ontario stream assessments. As well, assisted with Ecological Land Classification. Compiled data and created the graphical presentation for reports.[2011-present]

Regional Municipality of York, Upper York Sanitary Sewer, Environmental Assessment.

Conducted amphibian surveys at multiple locations. Conducted fish habitat assessments and rapid Ontario stream assessments. Crew member for electrofishing at multiple locations. Weekly temperature logger downloads.[2011-present]

Regional Municipality of York, Southeast Collection Trunk Sewer, Environmental Assessment.

Conducted amphibian surveys, benthic collection and rapid Ontario stream assessments at multiple locations. Conduct weekly sediment and erosion control inspections. Conduct extensive water level measurements and wetland monitoring. Compiled data and created the graphical presentation for reports.[2010-present]

CN Rail, Credit River Expansion Project, Georgetown, Ontario Liaison with contractor and client. Overseeing restoration planting in accordance with design drawings and making further recommendations if applicable while on site.[2011-2011]

Confidential Client, Groundwater Investigation and Remediation Work, Toronto and Guelph, Ontario.

Field staff that conducted extensive groundwater sampling, water levels, field chemistry, low flow sampling, and LNAPL and DNAPL bailing. [2006-present]

Holcim, Permit To Take Water and Certificate of Approval Monitoring, Mississauga, Colborne, Peterborough, and Port Hope, Ontario.

Lead field that conducted water levels from mini piezometers, boreholes, and residential wells. Collected field chemistry; sediment samples from Lake Ontario; and surface water, residential, and groundwater samples. Also conducted a surface water tracer test in Lake Ontario. Compiled data and created the graphical presentation for reports as well as prepared and wrote the quarterly and annual reports. [2006-present]

Township of Georgina, Landfill, Georgina, Ontario,

Deputy project manager. Collected gas readings water levels and groundwater samples from boreholes. Also collected surface water samples, field chemistry, and streamflows. Compiled data and created the graphical presentation for reports, as well as prepared and wrote the annual report. Created the 2010 budget. [2008-present]

County of Simcoe, Tosorontio, Alliston, Mara and Essa Landfills, County of Simcoe, Ontario.

Deputy project manager to manage and complete all required field work such as groundwater levels, groundwater samples, gas readings, surface water samples, field chemistry, streamflows, residential samples, and leachate seep observations. Liaison with landfills site supervisors; compiled data and created the graphical presentation for reports, as well as prepared and wrote the annual reports. [2010-present]



Bram West Landowners Association, Block 40-3 Environmental Impact Study, Mississauga, Ontario.

Lead field coordinator that collected water levels, field chemistry, and streamflows. Conducted a habitat assessment: completed surveying for top of pipe elevations for the new mini piezometers; performed pump and hydraulic conductivity testing; developed boreholes and collected groundwater samples; and compiled data and created the graphical presentation for reports



Nick Hodges

Aquatic Ecologist

Professional History

2005 - present, AECOM, Aquatic Ecologist

EcoTec Environmental Consultants Inc Resource Technician & Environmental Inspector 2001 – 2005

EcoTec Construction Limited Ecological Restoration Technician 2001 – 2005

U.S. Fish & Wildlife Service Biological Intern, Mojave Desert 1999

Education

Fish & Wildlife Technician Diploma (Letter of Academic Achievement) Sir Sandford Fleming College Lindsay, ON 2000

Terrain & Water Technician Diploma (Letter of Academic Achievement) Sir Sandford Fleming College Lindsay, ON 1999

Years of Experience

With AECOM: 5

With Other Firms: 5

Professional Affiliations

Field Botanists of Ontario Society for Ecological Restoration -Ontario Chapter Nick Hodges is an Aquatic Ecologist with ten years of consulting experience with expertise in fisheries and aquatic habitat assessment and ecological restoration. Since 2001, Nick has participated in a diverse range of projects with a focus on environmental impact studies and ecological restoration. Applying his expertise in fisheries and aquatic habitat assessments for municipal and provincial clients, Nick has obtained HADD authorizations by developing fish habitat compensation plans and has overseen implementation of fish habitat improvement projects.

Nick has participated in biodiversity studies and has provided consulting services to Aboriginal communities (First Nations and Métis) with respect to ecological restoration opportunities and review of major development projects. Nick has helped clients understand specific natural heritage functions in the context of provincial and federal policies as they relate to development proposals. He has helped facilitate regulatory approvals under the Fisheries Act, Conservation Authorities Act, Planning Act, Ontario Environmental Assessment Act and the Canadian Environmental Assessment Act. Nick's broad understanding of aquatic and terrestrial ecology has allowed him to effectively manage multi-disciplinary projects. He has received training in project management effectivation.

EXPERIENCE

Fisheries Act and Regulatory Approvals

Approvals obtained under the *Fisheries Act* require determination of fish habitat significance and sensitivity and determination of mitigation opportunities to avoid or minimize impacts. Fish habitat enhancement and compensation planning is undertaken in order to successfully obtain Letter of Advice or HADD authorizations and is followed by post-construction monitoring. Project experience includes:

Hays Pond Modifications, Oakville (2011)

Prepared habitat enhancement plan and regulatory submission for approval of fish habitat modifications under *Canada Fisheries Act* and *Conservation Authority Act*.

Fisheries Existing Conditions and Impact Assessment for Goulais River Embankment Repairs, MTO (2010)

Conducted an impact assessment to sensitive fish habitat in the Goulais River and recommended fish and fish habitat mitigation measures. Applied DFO Risk Management Framework, Pathways of Effect and prepared HADD/no HADD forms.

DFO Compliance Monitoring, City of Guelph (2005 - 2009)

Project manager for a multi-year pond monitoring study resulting in management recommendations for improvements to water quality,

mitigation of nuisance wildlife and suitability of fish stocking. Conducted fish community and habitat assessments and related water quality results to inform management recommendations.

Marina Conceptual Development and Fisheries Act Review, Port Severn (2005-2007)

Conducted multi-season fisheries inventory using trap nets and fyke nets. Conducted muskellunge spawning habitat assessment. Assessed significance and sensitivity of fish habitat, impact assessment and developed mitigation measures. Reviewed *Fisheries Act* regulations and provided assessment of opportunities for marina development adjacent to Provincially Significant Wetland.

Sunnybrook Sub-trunk Sewer Construction, City of Toronto (2005-2007)

Conducted fisheries and aquatic habitat assessment and subsequently developed an open-cut stream crossing mitigation plan and streambank restoration plan. Developed a frac-out contingency plan for directional drilling operations. Assisted in obtaining regulatory approvals for above noted works.

Blueshores Marina Development, Collingwood (2005-2006)

Obtained an amendment to a *Fisheries Act* HADD authorization for in-water works in a Georgian Bay marina. Provided client and contractor with advice on *Fisheries Act* regulations.

Detail Design for Highway 11/502, GWP 407-00-00, MTO, Fort Frances (2004)

Conducted fisheries and aquatic habitat assessments for multiple watercourse crossings, developed a fish habitat compensation and post-construction monitoring plan, and obtained *Fisheries Act* HADD authorization for works to proceed in accordance with DFO policies on fish habitat.

Dufferin Concrete, Various Locations (2005-2006)

Conducted fish habitat assessments in conjunction with hydrogeology investigations by other team members to identify potential impacts as a result of proposed groundwater takings at aggregate facilities. These site-specific studies supported Permit to Take Water applications in Guelph, Stratford, London and Cambridge.

Lake Simcoe SWTP Detail Design, City of Barrie (2005-2006)

Helped facilitate approvals from Lake Simcoe Conservation Authority and DFO for construction of a Surface Water Treatment Plant on Kempenfelt Bay required to supply the City of Barrie with expanded water supply. Provided guidance on *Fisheries Act* approvals process and collaborated with Landscape Architect to develop a forest restoration plan.

<u>Fisheries and Aquatic Habitat Inventory, Assessment and Monitoring</u>

Fisheries and aquatic habitat inventory and assessments have required detailed investigations of fish habitat and aquatic environments according to provincial methodologies, standards and protocols. Identification of fish species, determination of existing conditions, assessment of potential impacts and development of mitigation measures was carried out. Long-term fisheries compensation monitoring was also carried out. Project experience includes:

Fisheries and Aquatic Habitat Assessment for Conestogo Wind Farm Project, Wellington County (2008)

Assessed fish communities and fish habitat in preparation for Fisheries Act approvals for watercourse crossings on a proposed wind farm.

Fisheries and Aquatic Habitat Assessment for Mine permitting, Red Lake (2007-2008)

Conducted trap netting surveys in McNeely Bay and collected benthic macroinvertebrate samples for Ecological Effects Monitoring study.

Fish Habitat Assessment of the Grand River, Town of Elora (2006)

Characterized fish habitat in Elora Gorge reach of Grand River to support an Assimilative Capacity Study.

Brook Trout Spawning Survey, Fisheries and Aquatic Habitat Assessment for Blue Springs Creek, City of Guelph (2006)

Conducted fall spawning surveys to identify brook trout redds, and conducted fish community sampling and aquatic habitat mapping to support a Class EA for municipal groundwater taking.

Brook Trout Spawning Survey, Monora Creek, Town of Orangeville (2006)

Identified brook trout redds in three reaches of Monora Creek to support on-going monitoring program for a municipal groundwater taking.

Lake Assessment Study, City of Brampton (2005)

Conducted trap netting and seine netting of multiple lakes in City of Brampton to support Lake Management Study.

Brook Trout Monitoring Survey, Town of Caledon (2005)

Conducted electrofishing of brook trout habitat using three-pass removal method to facilitate population estimation in support of OWRA permit monitoring.

Fisheries and Aquatic Habitat Assessment for Osler Bluffs Secondary Plan, Grey/Simcoe Cty (2005)

Characterized fish community and fish habitat conditions in large study area to support development of a municipal Secondary Plan.

Fisheries and Aquatic Habitat Assessment for Dreamer's Park, Georgian Bay, Port Severn (2005)

Conducted trap netting and seine netting along Georgian Bay shoreline to support private development application.

Fisheries and Aquatic Habitat Assessment of Bay of Quinte for City of Belleville Master Plan (2005)

Conducted trap netting and aquatic habitat assessment in City of Belleville waterfront to support municipal Master Planning process.

Fisheries and Aquatic Habitat Assessment for Corbyville Creek, MTO (2002-2004)

Characterized fish community composition and aquatic habitat to support highway reconstruction activities.

Fisheries Assessment and Compensation Planning, Ravenshoe Road, Town of Georgina (2003)

Assisted in development of fish habitat compensation planning for road widening in PSW.

Fisheries and Aquatic Habitat Assessment for Highway 6, MTO (2003)

Characterized fish community composition and aquatic habitat to support highway reconstruction activities.

Fisheries and Aquatic Habitat Assessment for Highway 118, MTO (2003)

Characterized fish community composition and aquatic habitat to support highway reconstruction activities.

Lake Sturgeon Spawning Assessment for Petrie Island, Ottawa River, City of Ottawa (2003)

Implemented larval sampling program for Lake Sturgeon in Ottawa River.

Long Term Monitoring of Highway 417 Mississippi River Fish Habitat Compensation, MTO (2002-2003)

Conducted trap netting and electrofishing to monitor effectiveness of fish habitat compensation measures on Mississippi River.

Long Term Monitoring of Carruthers Creek Tributary Realignment, Regional Municipality of Durham (2002-2003)

Conducted multi-year monitoring to determine effectiveness of fish habitat compensation measures.

Fish Residency and Shoreline Aquatic Habitat Assessment for Morton Bay, Whitefish Lake, Parks Canada, Rideau Canal Office (2002)

Assisted with snorkelling surveys and centrarchid nest mapping for Whitefish Lake on behalf of Parks Canada.

Fisheries Inventory and Assessment for Highway 15 from Highway 401 to Highway 7 (2001-2002)

Conducted three-season fish community surveys at bridge and culvert crossings on Highway 15 to support highway reconstruction.

Ecological Restoration

Fish habitat, wetland and forest restoration as well as bioengineering and naturalization planting projects involve production of planting plans, identification of appropriate native species, cost estimation and preparation of tender bids, project management, site supervision and implementation. Project experience includes:

Confidential Client, Guelph (2008-2010)

Developed an experimental approach to forest restoration of a contaminated site.

Windermere Basin Fish Habitat Restoration, City of Hamilton (2008)

Identified a suite of sentinel fish species to form the basis of a fish habitat compensation plan to provide enhanced aquatic habitat as part of Hamilton Harbour remediation activities.

Walpole Island First Nation (2008)

Conducted Phase 1 of a feasibility study, including sediment and water sampling, in order to commence a strategy to restore 14 linear kilometers of fish habitat.

Environmental Monitoring and Restoration, Confidential Client (2007-2008)

Obtained soil and water samples before and after clean up of a mine tailings release to a wetland. Assessed and mapped impacts to vegetation and provided recommendations for restoration options.

Various Projects, York Region (2006 - 2008)

Responsible for co-ordinating and designing ecological restoration improvements for 16th Avenue Trunk Sewer Construction projects. Designed and implemented stream bank bioengineering, wetland restoration and lowland forest restoration. Developed riparian planting plans to improve buffer zones on Bruce Creek and increase ecological function of the riparian corridor.

9th Line Tributary D Restoration, Town of Markham (2005)

Developed an ecological restoration plan for stream bank, wetland and forest restoration to mitigate an open cut crossing of a tributary of the Rouge River.

Keele Street and Highway 7 Stream Restoration and Bioengineering Works, City of Vaughan (2004)

Implemented stream bank bioengineering and riparian/floodplain plantings.

Black Ash Creek Flood Control –Bioengineering and landscaping, Town of Collingwood (2004)

Installed 1000s of bareroot shrubs and live stakes along Black Ash Creek.

Humber River Tributary Aquatic Habitat Restoration for Airport Road Widening, Regional Municipality of Peel (2004)

Constructed new reach of creek channel to reinstate fish habitat and riparian vegetation.

Laurel Creek Bank Stabilization and Live Crib Wall Construction, University of Waterloo (2004)

Installed biologs and riparian shrub plantins for shoreline stabilization project.

Fish Habitat Compensation Works – Rootwad Installation, Iron Bridge, Ministry of Transportation (2003)

Installed rootwads on Mississauga River and aquatic vegetation renewal in back bay habitat.

Hansen Boulevard/Creek Realignment and Bioengineering Construction and Supervision, Town of Orangeville (2003)

Provided supervision of natural channel realignment and installation of riparian shrubs.

Aquatic Plant Installation, Richmond Green Park, Town of Richmond Hill (2003)

Installed aquatic plantings for large stormwater management pond facility.

Wood Boulder Reef Construction, Matheson, MTO (2003)

Constructed wood boulder reefs on lake ice for subsequent submersion as part of fish habitat compensation plan.

Live Crib Wall Construction for Lynde Creek Stabilization, Town of Whitby (2003)

Constructed live crib wall along Lynde Creek to support bank and slope stabilization project.

Creek Channel Realignment and Live Crib Wall Construction and Supervision, Pottageville, Region of Peel (2003)

Constructed live crib wall along Pottageville Creek to support bank stabilization project.

Mosquito Creek Channel Realignment and Live Crib Wall Construction and Supervision, City of Ottawa (2003)

Constructed live crib wall along Pottageville Creek to support bank stabilization project.

Carruthers Creek Channel Realignment and Landscaping, Ajax, Ministry of Transportation (2003)

Supervised construction of natural channel design for Carruthers Creek realignment.

Construction of Ecological Enhancements for Stormwater Pond, Town of Erin (2002)

Constructed a stormwater management pond and installed native plantings to stabilize side slopes and gravel baffles.

Lemon Creek Fisheries Compensation Implementation, CNR (2001)

Participated in creation of fish refuge habitat and bank shading/stabilization as part of fish habitat compensation.

Trout Creek Fisheries Compensation Implementation, MTO (2001)

Constructed and installed LUNKERS and rootwads for creation of fish refuge habitat and shoreline stabilization on Trout Creek as part of fish habitat compensation.

Willow Park Ecology Centre Wetland, Boardwalk and Trail Construction (2001)

Installed aquatic plants to enhance wetland habitat, and constructed viewing platform and trail system for recreational activities in urban park.

Doon Mills South Stormwater Pond Enhancement Plantings (2001)

Installed aquatic plants and riparian vegetation to enhance stormwater management pond.

Environmental Impact Studies, Feasibility Studies

EIS and Feasibility Studies integrate fisheries, aquatic habitat, vegetation, wildlife and species at risk to guide development proposals in accordance with provincial planning policies and objectives. Project experience includes:

Impact Assessment to Grand River Fish Habitat from the Proposed Elora WWTP Expansion, Elora (2010)

Assessed potential impacts of revised effluent criteria to Grand River fish habitat. Reviewed potential impacts of proposed changes in water quality as they relate to brown trout spawning habitat.

EIS to support Replacement of Bridge Structure on Middlebrook Road, Wellington County (2008-2010)

Conducted assessment of terrestrial ecosystems and developed mitigation measures for proposed bridge replacement.

Impact Assessment for Elora Wastewater Treatment Plant Expansion (2007-2010)

Conducted an assessment of significance and impact assessment on natural features and functions as they relate to the Provincial Policy Statement and Grand River Conservation Authority policies for wetlands.

EIS to support Replacement of Bridge Structure, Town of Erin (2009)

Conducted assessment of terrestrial ecosystems and developed mitigation measures for proposed bridge replacement.

Hayes Bridge Replacement EIS, Municipality of Trent Hills (2008)

Conducted fish habitat assessment of Hoards Creek tributary and Ecological Land Classification for surrounding lands to document existing conditions and identify potential impacts to an adjacent Provincially Significant Wetland as a result of a proposed bridge replacement. Developed mitigation measures to avoid and minimize potential impacts to both wetland and watercourse.

Nature Park EIS, Haliburton County (2007)

Conducted a fisheries and aquatic habitat assessment and provided mitigation recommendations for a proposed recreational park in Haliburton County.

Advanced Compost Corporation Feasibility Study, Guelph (2006)

Conducted an inventory of natural heritage features to identify preliminary environmental macro-constraints to a proposed composting facility. Identified natural heritage policy considerations and provided recommendations for further field investigations required to support a development application.

EIS to support Replacement of Bridge Structure on Speed River Tributary (2006)

Conducted assessment of terrestrial ecosystems and developed mitigation measures for proposed bridge replacement.

Beaver Valley Woodlands EIS, Municipality of Grey Highlands (2005-2006)

Project Manager for EIS prepared for a proposed housing subdivision intended to qualify as a Zero-Carbon development. Policy issues included presence of nationally endangered species and species of conservation concern. Provided design and mitigation recommendations to align project with objectives of Provincial Policy Statement.

Whiting Street Feasibility Study, Town of Ingersoll (2005-2006)

Project Manager for EIS prepared for a proposed commercial development abutting locally significant wetlands. Hydrogeologic investigation aided characterization of wetland as an impacted fen. Provided recommendations for wetland buffers and mitigation measures.

Port Severn Village Resort EIS, Port Severn (2005-2006)

Conducted fish habitat assessment and provided guidance on

Fisheries Act issues for a proposed development on Georgian Bay involving complex planning and policy issues.

W.C. Wood Property Feasibility Study, Guelph (2005)

Conducted a fish habitat inventory of a municipal drain to determine the potential for a habitat connection between the drain and the Speed River. Study was conducted to assist with future land use planning.

EIS to support Sleepy Hollow Golf Course Expansion, Stouffville (2004)

Classified vegetation according to Ecological Land Classification protocols to support EIS.

EIS to support Crompton Lot Severance, Penetanguishene (2002)

Conducted assessments of fish community and fish habitat to support EIS for lot severance.

Transportation Class EA

Fish community and aquatic habitat evaluations were undertaken in order to assess potential impacts from proposed highway construction projects and mitigation measures were developed. Project experience includes:

Detailed Design for Highway 401 Widening, Mississauga, MTO (2011)

Conducted fisheries assessment and associated documentation as per MTO/DFO/MNR protocol.

Preliminary Design for Highway 24, Cambridge, MTO (2007)

Participated in collection of aquatic ecosystem and amphibian data to support EA.

Preliminary Design for Highway 8, Stratford, MTO (2007)

Participated in collection of aquatic ecosystem and amphibian data to support EA.

Planning Study and Preliminary Design for Highway 401 from Brock Road to Courtice Road, WP 242-86-00, MTO (2004-2005)

Assisted with preparation of Class EA documentation for highway improvements.

Preliminary & Detail Design for Highway 11/502, GWP 407-00-00, Fort Frances, MTO (2001-2004)

Conducted all phases of Class EA process, including agency consultation, for preliminary and detail design.

Detailed Design for Highway 11/17, GWP 524-00-00, Thunder Bay, MTO (2004)

Conducted all phases of Class EA process, including agency consultation, for preliminary and detail design.

Detailed Design for Highway 546, WP 513-00-01, MTO (2003-2004)

Prepared Class EA documentation for highway improvements.

Detailed Design for Highway 651, WP 512-00-01 and WP 137-97-01, MTO (2003-2004)

Prepared Class EA documentation for highway improvements.

TPM – Preliminary Design for Highway 401/Lakeridge Road Interchange Widening from Carruthers Creek to Highway 12, WP 128-99-00, MTO (2002-2003)

Assisted with preparation of Class EA documentation for highway improvements.

TPM – Preliminary Design for Highway 401 Widening from Westney Road to Harwood Avenue, WP 170-00-00, MTO (2002-2003)

Assisted with preparation of Class EA documentation for highway improvements.

Preliminary Design for Reconstruction of Ravenshoe Road from Prout Road to Lakeridge Road, Region of York (2001-2002)

Conducted natural science field inventories to support preliminary design for highway improvements. Conducted literature search for highway wildlife collision mitigation options.

Environmental Monitoring

Environmental monitoring requires a diverse range of technical capability including collection of water quality samples, soil and sediment samples, groundwater/surface water interaction studies, review of watershed monitoring data and collection of baseline environmental conditions. Project experience includes:

Fairy Lake Sediment Coring Study, Town of Acton (2009)

Collected under-ice lake bottom sediment cores for sediment analysis study.

Adaptive Management Plan Development for Blue Springs Creek, City of Guelph (2006 – 2008)

Assisted in development of an Adaptive Management Plan to monitor effects on coldwater trout habitat in Blue Springs Creek from a long-term groundwater pumping test. Helped develop surface water monitoring study to determine groundwater / surface water interactions, identify conditions required to sustain aquatic biota, and assess potential effects on a coldwater ecosystem.

Subwatershed Monitoring Data Review, Credit Valley Conservation (2007)

Provided technical fisheries review of CVC's Effectiveness Monitoring program data.

Subwatershed Monitoring Data Review, Credit Valley Conservation (2006)

Project manager for seven year review of Fletchers Creek subwatershed monitoring data. Data sets included water quality, hydrology, benthic macroinvertebrates, fisheries and fluvial geomorphology. Provided a quality assurance review of raw data and helped integrate results across technical disciplines to provide conclusions on watershed health and recommendations for improvements to the monitoring program.

Aquatic Ecosystem Monitoring, Walker Aggregates, Niagara Falls (2006)

Project Manager for an Aquatic Ecology Monitoring Program to support a Permit To Take Water amendment for ongoing quarry activities. Study began with collection of baseline data and followed with a monitoring program to assess impacts on streams due to changes to groundwater levels. Investigation included surface water flow monitoring, shallow groundwater monitoring, fish community and habitat assessment, and benthic macroinvertebrate community assessment.

Aboriginal / Métis Consultation and Peer Review

Taykwa Tagamou Nation (2010)

Provided technical ecological review, on behalf of Taykwa Tagamou Nation, of the Fish Removal and Protection Plan for Abitibi Canyon Dam Generating Station Tailrace Rehabilitation.

Métis Nation of Ontario (2010)

Prepared an 80 page report titled 'Ecological Values of the Boreal Forest' intended to provide MNO with an accessible information resource relating consequences of natural and anthropogenic change in the Boreal Forest on Metis Way of Life.

Métis Nation of Ontario (2009)

Provided technical ecological review, on behalf of the Metis Nation of Ontario, of Hydro One's Bruce to Milton Hydro Corridor Twinning EA. Provide client with advice on effectiveness of proposed ecological restoration on large scale project.

Walpole Island First Nation (2008)

Retained by WIFN to provide technical review of Shell Canada's EA for the proposed Sarnia oil refinery. Reviewed issues on biodiversity, species at risk, provincially significant wetlands, fish habitat, hunting access, and potential impacts to livelihood of community members. Participated as a member of joint consultation group consisting of representatives of WIFN, federal and provincial governments and Shell Canada.

District Municipality of Muskoka (2007-2008)

Provided peer review and technical fish habitat review for various shoreline development applications in Muskoka District.



Gregg Ferris, B.Sc.

Environmental Scientist

Professional History

2006 - present, AECOM, Hydrologist

Zenon Environmental Inc. Laboratory Technician/Pilot Tester Burlington, ON 2003 – 2004

Canada Centre for Inland Waters National Water Research Institute Scientific Researcher/ Laboratory Technician Burlington, ON 2002

Environment Canada Ontario Region Scientific Researcher Downsview, ON 2002

Terraprobe Engineering Consultants Soil Laboratory Technician Hamilton, ON 1997, 1998, 2001

Education

B.Sc., Honours
Earth and Environmental Science Co-op
Program
McMaster University
Hamilton,ON
1999 - 2004

Training

Environmental Science Technician Diploma Mohawk College Hamilton, ON 1997 – 1999

Chemical Technician Diploma Mohawk College Hamilton, ON 1995 – 1997 Gregg Ferris is an Environmental Scientist with over five years of professional consulting experience with AECOM in the fields of physical hydrology and hydrogeology. Gregg has been extensively involved in projects related to source water protection studies and the aggregate industry. He is very experienced with many types of field data acquisition, including drilling supervision and monitoring well construction, streamflow assessments and water quality sampling. Currently, Gregg is managing multiple aggregate projects for Holcim Canada. This work includes ensuring compliance with issued Permits-to-Take Water (PTTW) and Certificates of Approval (CoA), as well as working closely with the client to improve the environmental soundness of facilities. Gregg acts as board member and outside consultant to the Waterloo-Wellington chapter of the Ontario Stone, Sand and Gravel Association (OSSGA) and the Environmental Committee of the Ready-Mix Concrete Association of Ontario (RMCAO).

EXPERIENCE

Mining Industry

Ring of Fire Area: McFaulds Lake, James Bay Lowlands

Conducted baseline spot flow surveys, benthic sampling and surface water quality analysis and installed continuous stream stage monitoring equipment at an exploration mine site in Northern Ontario

Dundee Precious Metals: Back River (Goose Lake site)

Reconnaissance for spot flow survey sites in and around exploration mining camp

Aggregate Facility Monitoring

Holcim (Canada) Inc. Permit to take Water for Ogden Point Quarry, Cobourg, ON

Project Manager for maintaining existing PTTW (dewatering) and CofA (Industrial Sewage Works) compliance monitoring program for facility.

Holcim (Canada) Inc. Permit to Take Water (PTTW)

Various locations throughout Southern Ontario

Project manager for yearly monitoring of surface water and groundwater levels. Responsible for establishing yearly monitoring program changes and preparing annual report

Holcim (Canada) Inc. Water Quality Monitoring, Whitby, ON

Project manager for establishing water quality monitoring program for surface and groundwater. Providing guidance on site specific designs for water quality compliance and preparing quarterly and annual reports.

Holcim (Canada) Inc. Water Quality Monitoring, Etobicoke, ONProject manager for establishing water quality monitoring program for



Greg Ferris

Years of Experience

With AECOM: 6

With Other Firms: 6

surface water discharge. Providing guidance on site specific designs for water quality compliance

CBM, Flamborough Quarry

Aided in monitoring water levels during highly sensitive pumping test for proposed quarry, prepared daily hydrographs for clients on-site.

Groundwater Well Drilling

Halton Region Tier 3 Water Budget

Supervising the drilling of numerous groundwater monitoring wells throughout Halton Region. This included logging overburden and bedrock core samples for determination of well design. Project responsibilities also included:

- Aiding in monitoring well site selection
- Selecting sites for shallow groundwater monitoring (and installation of necessary equipment)
- Conducting Spotflow surveys for baseline data collection

Cedarvale Drilling Operations

Supervising the drilling of eight groundwater monitoring wells within the Arborglenn Community. This included logging overburden and bedrock core samples for determination of well design.

Limehouse Drilling Operations

Supervising the drilling of three groundwater monitoring wells within the CVC Limehouse Conservation Area. This included logging overburden and bedrock core samples for determination of well design.

Water Resources/Hydrology

Upper York Sanitary Sewer Discharge Assessment

Aided in conducting a series of geomorphic surveys throughout the Holland River Watershed to identify point source discharge locations

Halton Region, Black Creek Assessment

Established spot flow monitoring stations along reach of Black Creek where suspected buried bedrock valley exists. Installed mini-piezometers at selected locations for groundwater gradient determination

Halton Region, Beeney Creek Assessment

Established spot flow monitoring stations along reach of Beeney Creek where suspected buried bedrock valley exists. Installed mini-piezometers at selected locations for groundwater gradient determination

Nestle Waters Canada

Design of project was to determine new source of water for local Nestle Facility. Responsibilities included site selection of and installation of shallow groundwater monitors, water levels measurements during a series of step-tests, and collection and preparation of data for analysis

Arkell Springs Baseline Monitoring

Oversaw the design and equipment installation for the surface water monitoring program. Provided consultation on site selection and modification of existing sites to facilitate the collection of representative data. Regularly conducted field work which included but was not limited to:

- Surface water discharge measurements
- Shallow groundwater level monitoring

16th Avenue Sewer Trunk Expansion

Designed surface water model to predict low-flow periods during project run. Aided in collecting periodic field data to increase precision of model